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OF THE
SOUTH AND WEST.

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J. D. B. DE BOW, EDITOR AND PROPRIETOR.

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NOTE TO OUR FELLOW-CITIZENS.

WE here close FOUR VOLUMES of our REVIEW and two years. Our subscription list is already larger than that of any other work published in the South or West, and rapidly increasing. We have met with the most liberal encouragement, and have done the most we could to deserve it. We appealed to the South and West, and they heard our appeal. We have been enabled to improve and enlarge the work, and shall continue to do so, until it is larger than any other of the same price in America or in the world. We have secured able contributors, and are extending the field of action, making it interesting and valuable to every class of practical citizens, merchants, planters, manufacturers, &c., North, South, East and West. Our *commercial summaries* next year will be *monthly*, and of the highest value. AGRICULTURE shall be fully and efficiently represented as the wants of the South and West indicate.

The engravings of eminent merchants with biographical sketches, will be continued as often as they can be obtained. The second of the series we hope to present in January, 1848.

The monthly numbers next year will contain from 112 to 123 pages, forming semi-annual volumes of 650 to 700 pages, a very great enlargement on back volumes. Having a printing-office of our own on the most complete system, the typographical excellence of the work will be secured.

Let our subscribers stand by us, and add to our lists, in this enterprise we are conducting, the first of the kind that the South or West has ever had. These sections require and deserve such an exponent of their resources and power.

To conclude this note with a *dux*, would be in bad taste. We do not do it. If there is a year's subscription due to us by any one, we know that there is a generous sentiment in these matters, which will cause it to be immediately remitted! With enormous expenses and great confidence in our friends we must not be disappointed. The importance of every dollar—but we promised not to dun in this note.

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Art. I.—SOUTHERN AND WESTERN AGRICULTURAL AND MECHANIC ASSOCIATIONS.

SOUTH CAROLINA AND LOUISIANA AGRICULTURAL SOCIETIES: PROCEEDINGS, REPORTS, ETC.—PROGRESS OF AGRICULTURE AND AGRICULTURAL KNOWLEDGE AT THE SOUTH—PAPERS UPON SUGAR MANUFACTURE—ORATIONS OF HON. P. ROST AND J. D. E. DE BOW.

THE approaching anniversary (the fifth) of the Louisiana Agricultural and Mechanics' Association, being about to be celebrated at Baton Rouge, it is a meet occasion to call attention to its merits, and present its claims to the people of Louisiana and the South-west.

It is a common complaint, founded, alas, upon too melancholy a truth, that the Southern States have been content to prosecute agriculture with little regard to system, economy, or the dictates of liberal science. Blessed with an unusual fertility of soil, it has been erroneously deemed an ill advised economy to preserve and perpetuate that fertility. Almost any planting has been tolerated and prosecuted which could yield profitable returns for the time, without any regard to future operations. What matter if sterility come at last upon these pregnant fields?—if Virginia desert her tobacco acres?—if the Carolinas, and even Alabama, once an El Dorado, turn up an exhausted soil? Is there not an empire beyond, in the South and the West, where primitive wilds may be subdued and virgin soils brought under the plow, to undergo the same routine again? We will emigrate and leave waste, if we cannot sell, those old homesteads and acres from which, as a mint, our fathers, or even their sons, in days not long removed, coined gold.

Alas, how frequent have been these changes and how melancholy! What must be the reaction upon those who are compelled to undergo them? Can they feel the joys of HOME when a life is so uncertain? Why beautify those grounds, why develop gardens and orchards, and arrange shading oaks? Will not a rude axe to-morrow be applied to them all when their proprietor has abandoned them for some new conquest? Without the joys and comforts, without the associations of HOME, the virtues do not thrive. No man can be a patriot,

or a good citizen, where he is sojourning but for a short season and looking daily for emigration. That surety of our country's liberties, that bond which holds together its Constitution, is gone forever when we annihilate *State love* and its strong, fixed, and ardent concomitants.

We believe a great remedy for this mournful state of things is to be found in a discreet and enlightened administration of the soil, and the co-operation and labors of those engaged in agricultural pursuits throughout these regions, by societies and publications and occasional re-unions.

Our friends in South Carolina appear to be more deeply impressed with these truths now than the citizens of any other Southern State. They have numerous District Associations, of high character, and a State Society, which meets semi-annually in the interior, or the mountains, and where addresses are delivered by such men as the Hon. Mr. McDuffie, Mitchel King, Mr. Poinsett, Judge O'Neill, Whitmarsh Seabrook, Governor Hammond, etc. The Hon. John C. Calhoun was invited to deliver the last. There are also discussions and reports of great scientific and practical value, and some of the fairs we have attended did great credit to the Association. A department of agriculture has been organized in the College of South Carolina, and the State has appropriated a handsome sum for the publication of agricultural documents, after having had a geological survey. We have all these valuable publications before us on the table.

In 1784 the first agricultural society of South Carolina was formed, which exists to the present day. In 1823 there were eleven societies in the State—the South Carolina, the Pendleton, the Edgefield, the Barnwell, the St. John Colleton, the St. Helena, the Beaufort, the Beaufort District, the St. Andrews, the St. Pauls and the Win-
yah. In 1826 the St. Johns Society invited a convention of all these bodies, which was held in Charleston. In 1827, from the result of this movement, the United Agricultural Society was organized at Columbia. This Association not being productive of the desired results, in 1839 a convention, at Columbia, formed the **STATE SOCIETY**.

"In perusing," says Mr. Carroll, in his preface to the valuable volume of Carolina Agricultural Reports and Publications,* 1847, "the able documents embraced in this volume, it will doubtless be impressed upon the reader's mind, that South Carolina, though one of the earliest cultivated colonies of the Union, and though the pursuits of its people have been essentially agricultural, yet such is the impoverishment of some of its best lands, that all the helps of science, skill, and industry, are required to save them from barrenness, and to restrain her people from that spirit of emigration which is every day depopulating many portions of the State. Engaged, as four-fifths of her population are, in agriculture; deriving nine-tenths of her treasure from the taxation of our planters; raising, as she does, one twenty-fourth part of all the cotton in the world; producing, too, one-seventh of all the exports of the Union; and paying into the national treasury one million of dollars more than all the New England States put together, it cer-

* Among the papers, &c., in this volume, are the Proceedings of the Society, 1840-45; Orations of Messrs. McDuffie and Seabrook; Essay on Malaria, by Dr. Dickson; Orations of Hammond, O'Neill, Roper, and Poinsett; Memoir on Slavery, by Chancellor Harper; Seabrook on the Cotton Plant; Allston on Rice—which we have published in the last year of our Review; Letters and Reports on Marl, &c., &c., 430 pages. We wish to see the Legislature of Louisiana do this much for the State's agriculture.

tainly becomes a question of no little interest, what has been done for the advancement of our agricultural interests. With one or two exceptions legislative aid has done nothing.

"While our planters have, with great forbearance, submitted to this state of things, those of other States have been aroused, and insisting upon their claims, have secured many reforms in their agricultural condition. They have been taught to feel, with the rest of the enlightened world, that agriculture is indeed of primary importance to their political economy—that with its prosperity all other branches of industry must flourish; while with its decline they must, just as certainly, languish and decay—in a word, that agriculture is the main shaft around which commerce, and manufactures, and the arts, all cluster, and by which they are sustained in vitality and strength. What, therefore, other States have acted upon, and prosperously consummated, is neither policy nor wisdom for South Carolina to neglect."

In Louisiana, whose resources and progress have been extraordinary, it is scarcely credible how little interest has been taken in the subject of scientific agriculture. Accounts on all hands are agreed that, until within a few years, the rudest systems of tillage were in use, and the most wasteful. Even now it is difficult to convince the planters, as a body, that they have anything to do out of the usual routine. There is not, we believe, at this time, a single Parish Agricultural Society in the State, and but a single Society of any sort addressed to these interests! It is almost impossible to induce the planters to attend even this, *a central and general institution*, so remarkable is the apathy which prevails. That there are noble exceptions we admit, but why should not this be a matter of *universal* interest? Surely a little reflection will satisfy any one of the great blessings which may be conferred by these bodies upon a Commonwealth. Whence the extraordinary attention paid to agriculture in Europe? We have hundreds of ponderous volumes of Reports from England and France;* and Russia, which some of us have been wont to call barbarian, has sent a letter to us inviting our agriculturists to co-operate with them in developing the soil. It is but the other day that we were called upon, individually, to furnish the Russian Society with a paper upon tobacco. Consider, too, the results in our own country. The Government is collecting material of this kind, and publishing through the Patent Office.† The State of Massachusetts publishes, at its own expense, an annual volume of several hundred pages, including the Reports, &c., of all District Societies.‡ In New York State they have a great Association, which meets at Albany; and in the city of New York, every two weeks, is convened the FARMERS' CLUB, of practical and scientific men, who discuss important subjects of agriculture. Having attended several of these meetings, we know their value. We heard discussions on silk, wool, sheep, hemp, etc., etc. There is an annual magnificent Fair of the AMERICAN INSTITUTE, of which the Club is a part, held in New York, and attended by hundreds and thousands of visitors.

* Mr. Vattemare, whose philanthropic mission among nations in inducing exchanges of valuable documents has excited so much attention, presented us, when in New York, with a large number of works of this kind, relating to France, for the State of Louisiana. Through the same means we can get them all, if willing to reciprocate.

† We lately saw its circular to Texas.

‡ We have one of these before us, 200 pages, 1846. It contains an abstract of the proceedings, reports, &c., of ten societies in the State, with extracts from the chief addresses, &c. It is thus that nothing is neglected or lost in Massachusetts.

The published volumes of Reports are worthy of all praise and preservation.*

It is now five or six years since the Agriculturists' and Mechanics' Association of Louisiana was organized at Baton Rouge, where it has met from year to year for public celebrations. The attendance, though respectable, has never been large. The exhibition and Fair have never been worthy of the State. However, we are inclined to hope much better results hereafter. Experience has been of service—energetic officers have been secured, and the State, by an appropriation, has manifested an interest in the matter. Let us indeed hope that the liberal and enlightened planters of Louisiana are now awake.

The removal of the seat of government to Baton Rouge makes that town a place peculiarly fitted for the meeting of the Institute. It should secure a permanent Hall in the new State-house being constructed, and a permanent *salaried* Secretary. There should be a library like that of the American Institute, containing all agricultural and mechanical publications, etc. A traveling agent should be appointed. An annual appropriation might be secured from the legislature in furtherance of the work.

But nothing of this kind can be effected without the establishment of *parish or district societies*. These are indispensable. Any three or five planters are sufficient to establish one. The monthly meetings will soon have interest to attract others, and thus a valuable system will grow up. These societies will send annually their reports and delegates to the central one. Shall it be asked, how these local societies are to be employed? We will show at a glance.

The Central Society should issue to all the local ones, and to indi-

* We make no reference to the high *protection* notions of the Institute. "This Institute has now been laboring for a period of eighteen years in advancing the cause of practical Science throughout the United States, and your memorialists have the gratification to know that their exertions have not been unavailing, and neither have their services for the public good been unacknowledged by those who were more deeply interested in them, or more particularly conversant with the results."—We extract from their memorial of 1846 to the Legislature, page 7. "The Institute, unaided and unsustained, except by its own energy, had a number of visitors at its last fair, said to be one-half as great as that of the great Fair of Paris, which is held *but once in five years*—and to which the French Government lends its powerful aid, by causing the whole kingdom to be examined by commissioners, for the selection of the most interesting articles for the exhibition, and *paying their transportation to Paris*. The number of citizens who visited the last Fair of the Institute was about *two hundred and fifty thousand*, while Paris contains about *three times* the population of New York. Niblo's Garden is engaged for the central exhibition. Fields of the plowing and spading matches will be selected, as conveniently as possible, for all classes of citizen visitors."—Proceedings of the Louisiana Society, 1846, page 5. "The 'Royal Agricultural Society' of England met at the Society's House, Hanover Square, London, 21st of May, 1845—Duke of Richmond, President. One of the points to which the Society's attention had been directed for the last half year, was a *chemical analysis of the ashes of plants grown on different soils, and in different localities throughout the kingdom*. The Society now consists of 96 life-governors, 204 annual governors, 495 life-members, and 6,123 annual members, making a total of 6,933 members. It appears from the statement of arrears, that on the 1st day of the present month, 35 governors and 2,281 members were in arrears of subscription, the sum amounting to £5,730; that at the general meeting in December last, the amount of such arrears stood at £6,603, a reduction of £879 having been effected during the last six months. The present amount of capital invested is £8,200—a purchase of £500 stock in the 3½ per cent. having been made during the last month. The current cash balance in the hands of the Society's bankers at the present time is £2,033, not including the sum of £1,000 contributed by the town of Shrewsbury toward the expense of the ensuing country meeting, and already paid over to the credit of the Society's account."—We quote from Farmer's Library, page 6, Proceedings of Louisiana Society, 1846, note by Mr. Thorpe.

viduals throughout the State, a circular similar to that issued by the South Carolina Society—requiring

- 1st. An account of the present condition of agriculture, and the changes since the first settlement of the county or parish.
- 2d. The general aspect of the parish, embracing the nature of the soil.
- 3d. The principal products.
- 4th. The kinds of cultivation or tillage in use.
- 5th. The favorite breeds of horses, mules, cattle, sheep and swine, and their management.
- 6th. The agricultural implements in use.
- 7th. The general value of land.
- 8th. The agricultural changes necessary to advance the prosperity of the parish.

It is hardly necessary to insist how much Louisiana has to gain by these operations, and what will be secured her by her successes. Let us emulate our sister State of Massachusetts in this. She collects and embodies minutely *all* the statistics of her varied and expanding industry, and publishes them, that every citizen may understand.

We have said nothing of the *mechanical department* of the Institute. We are doubtful here whether Baton Rouge will prove the proper place. The two departments may be separated to advantage, so far as the place of exhibition is concerned. NEW ORLEANS, the great city of the South and West, presents itself at once. Here the products of the ingenuity, the skill, the manufactures of all the Valley and the South, may be brought annually and presented for inspection. It should occupy a place for these regions like New York. The city is peculiarly fitted for the purpose. In the immediate vicinity of Texas, Mexico and Cuba, it must shed the broadest influences over them. We regard this as something worthy of future reflection. The day will yet come when what we have written shall appear prophecy. However, it will take time. The first step has been made in the establishment of the UNIVERSITY OF NEW ORLEANS.

We have not the data for other Southern States, and therefore cannot say what they are doing for agriculture. Will not their citizens favor us with abstract reports? We read the other day a partial geological survey of Alabama, and understand that something of the kind is mooted in Mississippi; indeed, that an agricultural professorship in one of her colleges is talked of. But unless this is an institution for the whole State, and under its patronage, the professorship will be of little service. Mississippi will not be behindhand in this race. She has many distinguished agriculturists, as we know.

Space will not admit a farther indulgence of these reflections. Our object was simply to call attention to the approaching Baton Rouge meeting, which it is to be hoped will be the most brilliant yet held in the State.

The following is the list of officers appointed in 1847:

COLONEL PHILIP HICKEY, *President*.

Vice Presidents.

J. Cooper, East Baton Rouge,
Valcour Aimé, St. James,
C. Adams, Iberville,

Judge Campbell, Opelousas,
Dr. Peck, Washita,
D. J. Porche, Natchitoches,

D. J. Fluker, East Feliciana,
B. Richardson, St. Tammany,
Gen. Ed. Sparrow, Concordia,
Gen. J. P. Walker, Rapides,
Miles Taylor, Lafourche Int.,

P. A. Rost, German Coast,
Verloin De Gruy, Jefferson,
B. M. Norman, New Orleans,
W. Taylor, Point Coupée,
Maunsel White, Plaquemines

Stephen Henderson, *Treasurer.*

T. B. R. Hatch, *Cor. Secretary.*

Executive Committee.—S. Henderson, chairman; J. McVay, James McCalop, D. Chambers, G. A. Pike, W. A. Tunnard, C. G. McHatton, F. D. Conrad, T. B. R. Hatch, S. Allain, A. G. Carter, J. B. Kleinpeter.

From the report of proceedings of 1847 we extract the three following letters in relation to sugar, which will be read with interest. Only a very few copies of the report were printed, and scarcely at all circulated. On this account we publish.

VALCOUR AIME'S RESULTS IN SUGAR CULTURE AND MANUFACTURE.

Mr. Valcour Aimé, sends for exhibition to the fair of the Agricultural and Mechanics' Association the following described specimens of sugar manufactured on his own plantation:

A loaf of sugar, first product, made directly from the cane-juice.

A box powdered sugar, first product.

One do. second product, liquored.

One do. do. not liquored.

One do. third product, liquored with molasses.

A bottle of syrup for liquoring sugar, weighing 36 degrees by Baumes' saccharometer.

A small specimen of rough or unrefined sugar from cane-juice.

These products have been obtained by means of the apparatus of Derosné & Cail, made by Messrs. Stillman, Allen and Co. of New York, with some modifications of the plan first adopted by the inventor. These modifications principally consist in some changes in the distributors, in the form of the vacuum kettles, and above all in the strength of the air-pumps.

This apparatus was received at the plantation of Mr. Valcour Aimé in 1845, too late to be put into operation for the taking off the preceding crop. The air-pump as first made was too weak, and it was found necessary to make another.

The Agricultural and Mechanics' Association has been incorrectly informed by those who have induced the society to publish in the annual report of 1846, that the first cost of the apparatus amounted to \$22,000, and that the contract for the modifications to be added, would amount to \$8,000. The apparatus as it at present stands, cost \$24,000. By it eighteen hogsheads of sugar can be made in twenty-four hours, and the whole of his last crop has been manufactured in this manner.

Mr. Valcour Aimé being neither a speculator nor a manufacturer of machines, does not persuade any one that the apparatus he has adopted is the best that can be made. His only wish is, that exhibiting these specimens to the inspection of the Sugar Planters, they may be enabled to compare them with those made by other processes, and thereby augment the mass of knowledge among the sugar producing class. These specimens have not been specially prepared for the fair. He has chosen them as far as possible with a view to give an idea of his average crop.

He abstains from furnishing any comparative tables, to show the number of thousands of dollars that can be gained on a crop by making use of this apparatus, and he advises the society not to grant the sanction of its name to any tables of this kind, but after the most severe and minute examination. Experience has demonstrated that these tables cannot be depended on, unless they are the results of conscientious and disinterested essays, repeated during several years. He will merely state, that he believes he has a knowledge of all the machines which have been erected in Louisiana for several years past, for the purpose of improving the manufacture of sugar, and he thinks the results obtained by the apparatus that he has had erected, are at least equal to any other, and that the planters that can afford the expense, would ever be gainers by erecting similar ones.

He believes that the economy in fuel and the increased price of the products will justify the expense, notwithstanding its being very great. He is, however, convinced that the disbursements can be covered by the difference in the price of the first, or even of the second crop.

He regrets not being able to add to the other specimens sent a greater quantity of common or rough sugar, manufactured by his apparatus. Sugar inferior to the sample sent, and which he merely had kept to compare by it, was sold at 7½ cents.

Mr. Valcour Aimé thinks it his duty to add, that the apparatus of Rillieux, which he constructed on the same principles as that of Derosné & Cail, will, in his opinion, produce the same results. The expense of putting up either is about the same.

The Agricultural and Mechanics' Association has certainly been led into error, in stating in the report of last year that the negroes employed on a plantation can conduct these machines *without the assistance of a sugar-maker*, and that the planters in the northern parishes of the State may, in using them, obtain *fine sugar from the sour juice of frozen canes*. Such an error might occasion great loss to be sustained by many planters. The apparatus of Rillieux as well as that of Derosné & Cail, is too complicated to be entrusted to negroes, without the active superintendence of an experienced sugar-maker, and a more thorough examination will convince the society, that when the cane-juice is really sour, it is impossible to make good sugar either with the one or the other apparatus.

Signed

VALCOUR AIME.

MR. LESSEP'S RESULTS.

Having a desire to ascertain the difference that might exist in the manner of making sugar by the ordinary kettles and the apparatus of Mr. Rillieux, I caused to be cut down 25 arpents of cane on the 12th of November last, which I made into sugar, and which yielded 26 hogsheads and about 73 gallons of molasses per hogshead.

Five days later I had 25 arpents more cut down in the same part of the cane field, which by the apparatus of Rillieux, yield 32 hogsheads of sugar, and 53 gallons of molasses. The average weight of the two qualities was from 1050 lbs. to 1075 net.

In order that the one mode of making sugar should have no advantage over the other, I caused these 50 arpents of cane to be cut in the following manner:

My field presents a front of 10 arpents by 5 feet in depth; I took numbers 1, 3, 5, 7, and 9 for the kettles, and Nos. 2, 4, 6, 8, and 10 for the apparatus of Mr. Rillieux.

On my plantation at Poverty Point, I had 66 hogsheads of sugar on the cistern; with the molasses which drained from the same, I obtained about 22 hogsheads of sugar by a second operation.

MAUNSEL WHITE'S SUGAR.

GENTLEMEN:—I am enabled, through the kindness of Col. MAUNSEL WHITE, to present to you for exhibition at the State Agricultural Fair, now being held in this city, a sample of sugar from his plantation. He has instructed me to say to you, that though prevented by the nature of his occupations from being present, he feels the deepest interest in the cause in which you are engaged, and will be happy to subscribe toward the encouragement of everything useful and laudable in arts and husbandry submitted to your Committee.

I have the honor to remain, gentlemen,

Your obedient servant.

JOHN BURKE.

The committee on sugar, in 1846, made a valuable report, from which the following is extracted:

PRODUCTION OF SUGAR ON THE NEW AND OLD SYSTEMS.

1st. *Old Lands—Forty gallons of Molasses per 1000 lbs. of Sugar.*

Receipts.	Common kettles.	Apparatus (rough sugar).	Apparatus (liquored do.).
First Sugar.....	1000 lbs., at 5 cts.... \$50 00	1000 lbs., at 7½ cts.... \$75 50	710 lbs., at 10½ cts.... \$74 55
Second Sugar.....	.. .. .. .. ..	300 lbs., at 6 cts.... 18 00	355 lbs., at 8 cts.... 28 40
Cistern's Bottom.....	100 lbs., at 2½ cts.... 2 50	.. .. .. .. ..	.. .. .. .. ..
Molasses.....	40 gals., at 15 cts.... 6 00	15 gals., at 15 cts.... 2 25	44 gals., at 25 cts.... 11 00
<i>Expenses.</i>			
Wood.....	3 cords, at \$1 50.... 4 50	1 cord..... \$1 50	1 cord..... \$1 50
Bone Black.....	.. .. .. .. ..	25 lbs., at 2½ c.... 62— 2 12	25 lbs., at 2½ c.... 62— 2 12
Net proceed on 1000 lbs. .	54 00	95 63	111 63
Crop of 600,000 lbs. .	\$32,400 00	\$57,378 00	\$67,098 00

2d. *Ordinary Lands—Fifty gallons of Molasses per 1000 lbs. of Sugar.*

Receipts.	Common kettles.	Apparatus (rough sugar).	Apparatus (liquored do.).
First Sugar.....	1000 lbs., at 5 cts.... \$50 00	1000 lbs., at 7½ cts.... \$33 70	750 lbs., at 10½ cts.... \$78 75
Second Sugar.....	.. .. .. .. ..	300 lbs., at 6 cts.... 18 00	375 lbs., at 8 cts.... 30 00
Cistern's Bottom.....	100 lbs., at 2½ cts.... 2 50	.. .. .. .. ..	.. .. .. .. ..
Molasses.....	50 gals., at 15 cts.... 7 50	15 gals., at 15 cts.... 2 25	47 gals., at 25 cts.... 11 75
<i>Expenses.</i>			
Wood.....	3 cords, at \$1 50.... 4 50	1 cord..... \$1 50	1 cord..... \$1 50
Bone black.....	.. .. .. .. ..	25 lbs., at 2½ c.... 62— 2 12	25 lbs., at 2½ c.... 62— 2 12
Net proceed on 1000 lbs. .	55 50	101 83	118 5
Crop of 600,000 lbs. .	\$33,300 00	\$61,098 00	\$71,028 00

3d. *New Lands—Sixty gallons of Molasses per 1000 lbs. of Sugar.*

Receipts.	Common kettles.	Apparatus (rough sugar).	Apparatus (liquored do.).
First Sugar.....	1000 lbs., at 5 cts.... \$50 00	1160 lbs., at 7½ cts.... \$89 90	790 lbs., at 10½ cts.... \$82 95
Second Sugar.....	.. .. .. .. ..	300 lbs., at 6 cts.... 18 00	355 lbs., at 8 cts.... 31 60
Cistern's Bottom.....	100 lbs., at 2½ cts.... 2 50	.. .. .. .. ..	.. .. .. .. ..
Molasses.....	60 gals., at 15 cts.... 9 00	15 gals., at 15 cts.... 2 25	49 gals., at 25 cts.... 12 25
<i>Expenses.</i>			
Wood.....	3 cords, at \$1 50.... 4 50	1 cord..... \$1 50	1 cord..... \$1 50
Bone black.....	.. .. .. .. ..	25 lbs., at 2½ c.... 62— 2 12	25 lbs., at 2½ c.... 62— 2 12
Net proceed of 1000 lbs. .	57 00	108 03	124 68
Crop of 600,000 lbs. .	\$34,200 00	\$64,818 00	\$74,808 00

NOTE.—The dry bagasse from the cane giving one thousand pounds of sugar, is, as fuel, more than equivalent to one cord of wood, and when the first is used with the apparatus, it dispenses altogether with wood.

In condensing the above we find that the profit on a crop of 600,000 pounds, derived from the new process, and above the common, is as follows:

	Rough sugar.	Liquored sugar.
1st. Old land.....	\$24,978	\$34,698
2d. Ordinary land	27,798	37,728
3d. New land	30,618	40,608

We are informed that the advances incurred by the planters, to take a yearly crop of 600,000 pounds by this apparatus are \$20,500, to obtain rough sugar; and \$24,500 to make liquored sugar.

The following extracts are from the able address of Hon. P. A. Rost, delivered before the Association in 1845. They are worthy of a much wider circulation than has yet been given them.

JUDGE ROST ON THE CULTURE AND MANUFACTURE OF SUGAR.

In a paper which I had the honor to contribute to the labors of the Association last year, I stated that the modern improvements in agriculture were the result of recent and more accurate knowledge on draining, plowing, manuring, and interchange of crops. I then gave a description of the process of thorough draining, as practised in Great Britain, and of subsoil-plowing, which is the complement of it. It is unnecessary to revert to the subject here, except for the purpose of stating that this process is being rapidly introduced in the British

West Indies, and that it has proved as beneficial there as in Europe ; so much so, that although by the present modes of cultivation the average of ratoons and plants is seldom two thousand pounds of sugar per acre, it is confidently believed that in lands thoroughly drained and subsoiled the average will be five thousand pounds per acre. I have no doubt of it, and when that system is introduced here, the produce of a depth of sixteen inches of dry alluvial soil cannot be predicted ; nobody knows to what size cane may be made to grow, and how much sugar it can yield. But, sir, the process is expensive, and can only be introduced gradually. We must, for the present, go on with our open drains, and we can do passably well with them, provided we have them not over one hundred feet apart, and not less than three feet in depth. With such drains, made or thoroughly cleaned when the land is planted in corn, the hardest clays, if not too low, will be found in the subsequent years to drain as well, to plow as deep, and to pulverize as fine as light soils ; they will, moreover, yield greater returns of sugar.

Connected with the subject of draining, is that of draining swamps and low lands so as to render them fit for cultivation—a subject of high importance, since, besides the vast quantity of public lands of that description in Louisiana, there are few plantations on which the proportion of these lands is not greater than that of the cultivated fields. Some abortive attempts at draining low lands had before been made, but within the last year a few intelligent planters below New Orleans have taken the lead in good earnest. Their draining machines are the most perfect of the kind, and they have succeeded in obtaining solid foundations for their locks. After the heaviest rains they dry their land in an incredibly short space of time, and their crops of corn are now growing in marshes below the level of the tides. Their success establishes the fact, that the low lands may be effectually drained in large tracts at an outlay which, with the Congress price of those lands, would not exceed fifteen dollars per superficial acre.

The food of plants, and their modes of existence, form the subject of a very remarkable work, that of Justus Liebig, upon organic chemistry applied to agriculture. Others before him had submitted to analysis trees, plants and the earths in which they grow. Countless results of isolated experiments had been collected, but they were rather perplexing than practically useful, till the master mind of Liebig constructed out of them a rational and simple theory of vegetable life. He had not all the facts necessary to make his theory perfect ; he was not aware, for instance, of the action of galvanism and electricity upon growing plants. But he did for agriculture what Lavoisier had done for chemistry ; he systematized what was known, and pointed out to his successors the true path of discovery. Taking for granted that the substances which are invariably found in a plant are necessary to its perfect development, he has shown which of those substances were supplied by the earth, by the atmosphere and by rain-water ; he has proved that pure vegetable mould, which has been considered as the only agent of vegetation, had in it but a secondary, and not an indispensable agency, and that the results assigned to it were produced by carbonic acid, water, and ammonia, or

rather nitrogen, and certain mineral salts which the earth supplies; he has discovered that in sugar-bearing plants carbonic acid is the source of saccharine matter. I cannot enter into a detailed examination of this author's views, but I will attempt to show you some of the results to which his theory would lead in the cultivation of the cane, and you will be pleased to find that the practice of our good planters fulfils all the essential requisites of science.

Sugar-cane, analyzed with great care and in various seasons by Mr. Avequin, a person fully competent to the task, is found to contain in proportions, not material to the present inquiry, the following substances, which, according to Liebig, are supplied exclusively by the earth: acetate of potash, phosphate of lime, silica, sulphate of potash, phosphate of potash, chloride of potassium, acetate of lime. These, as well as carbonic acid, ammonia and nitrogen, are hard names, names new to most of us; we must learn their import. Twenty-five years ago we knew not the meaning of piston and cylinder, of steam-chest and safety-valve. We all know it now; and as the application of steam to the mechanical arts has not wrought a greater change than the recent discoveries in agriculture are destined to effect, we will have to sharpen our intellects once more and raise them to the level of the times. Upon this, however, I do not at present insist, and if you are disposed to be very obstinate, take the mineral salts I have mentioned, as things which, being invariably found in the cane and never in the atmosphere, or in rain-water, should exist in the soil in a state fit for assimilation by plants; your lands must contain, in that state, potash, silica, lime, chloride, phosphoric acid, sulphuric acid, and substances yielding ammonia; and should any of these be wanting, they must be supplied by deep plowing or by manure.

As it is well known that cane flourishes equally well on all our alluvial lands, when they are first brought into cultivation, we may assume that all these lands once contained, in a state fit for assimilation, the substances necessary to its growth. There is, therefore, no original deficiency to supply, and wherever the cane has ceased to grow and to ratoon as it once did, it is because those substances have been abstracted from the soil by injudicious cropping.

Knowing the mineral substances which the cane requires, chemists tell us that we might at any time ascertain the deficiencies of our soil, by having it analyzed. The suggestion is plausible, but there is nothing in it; we would be as wise after the analysis as we were before. The learned author already quoted shows that arable lands are the result of the disintegration of rocks during many thousand years; that this process is ever going on at the surface of the earth, and that many thousand years will elapse before it is completed. By this process the alkalies and salts which the earth contains are gradually set free and rendered fit for assimilation by plants; and when all the substances thus set free have been taken up, plants requiring them will cease to grow in the soil where they are wanting: and yet if it will require thousands of years to effect a complete disintegration, the quantity abstracted by the cane in Louisiana, during a cultivation of forty years, must be infinitely small in relation to the quantity yet remaining; and accordingly it is found, where land sup-

posed to be exhausted has been analyzed, that it contains the same elements as the fertile soils adjoining it, or found beneath it, united in very nearly the same proportions. It is not the precise quantity of the different elements contained in our soil, which it imports us to know, but that portion of them which is disintegrated and fit for assimilation. This, I apprehend, chemistry cannot tell us.

If we could every year provide a sufficiency of mixed animal and bagasse manure for all the land we plant, it would be idle to inquire about the deficiencies of the soil, since that manure contains all the requisite substances. But, compelled as we are by the severities of the climate to plant annually a large portion of our crops, we cannot save one-sixth of the quantity of manure required. This should be husbanded with care and placed in rotation on the oldest lands; for the remainder, manure would have to be purchased at an expense which would not be under thirty dollars per acre, and the question naturally presents itself—Is it necessary to incur that expense and the extra labor to which it would give rise? Intelligent planters say that it is not, and science justifies their opinion. If in the lands that have been longest in cultivation, the alkalis fit for assimilation are partially exhausted, it should be remembered that the plow has seldom gone beyond the depth of six or seven inches, and that below that depth is a virgin soil, in all respects similar to the original surface soil, and deeper than the plow can ever penetrate. So that if a depth of six inches had yielded a sufficiency of disintegrated alkalis to cane crops during thirty years, there is no reason why the next six inches below should not do the same, provided they can be brought to the surface and kept in good tilth. With the thorough drain system this presents no difficulty, and it can be satisfactorily accomplished with the open drains I have recommended. With those drains, a depth of plowing of ten inches, when the stubble is broken up for corn, will give to the land that cannot be manured all the substances which the cane requires from the earth but one; it will not give a sufficiency of nitrogen. I stated last year that nitrogen or ammonia could only be supplied in large quantities by manure, and I was not then aware that any but animal manure could effect that object. Farther experience and observation have satisfied me that it is supplied in great abundance by a process which has long been followed without any clear conceptions of its mode of action: I mean that of covering the land with peas as early in the summer as the corn crops will permit. One of the advantages of peas as a green crop is, that they take from the land none of the alkalis which the cane requires, while their powerful system of roots has a tendency to accelerate the disintegration of the soil. But their principal action consists in shading the land, thus preventing the escape of ammonia which the rain-water deposits in it, and hastening by shade and humidity the decay going on at the surface, and the formation of nitre, which ever follows it in warm climates. The leaves and seed of the pea are richer in nitrogen than any other vegetable substance, and the result of their decay is the formation of additional quantities of nitric acid. The nitre and nitric acid thus formed, as well as the ammonia retained in the soil, yield to the following crop of cane the nitrogen they contain. The method now generally adopted of plow-

ing in the field-trash, restores to the ratoons, in a state fit for assimilation, most of the alkalies which the plants took up in their growth; and should more ammonia be wanted, by setting fire to the field-trash after a rain the top part of it is converted into charcoal, which has the power of absorbing ninety times its volume of ammonia. To facilitate this operation, cane ought not to be planted less than six feet apart. What precedes, and with it such frequent movings of the soil as perpetually keep the young plants in an atmosphere of carbonic acid, is the method pursued in Louisiana by all successful planters, and the only material improvements I would suggest to them are those of thorough draining and subsoil plowing.

There are, however, cheap mineral manures with which it would be well to try experiments. In hard clay lands, for instance, especially if they are too near the level of the swamp to be plowed deep with advantage, quick-lime applied to the corn land at the rate of fifty or sixty bushels to the acre, produces an admirable effect upon the ensuing crops. It is itself one of the substances which the cane requires, and can replace others; aided by a crop of peas, it very much increases the quantity of nitre and nitric acid formed at the surface, keeps the land in the finest state of tilth, causes the rapid decay of the inert vegetable substances which accumulate in it during repeated crops of cane, and is thus an abundant source of carbonic acid. Land I limed four years ago, was planted again last winter, and the cane upon it is the best I have.

Experiments successfully made in Europe induce me to believe that we all have at home a substance possessed of the same qualities as lime, and in a higher degree. That substance is clay when burnt to ashes. I cannot describe the process by which it is prepared; you will find it in a recent publication entitled the "Farmer's Manual." It is sufficient to state that little or no fuel is required, and that one small cart-load of the ashes is said to have a better and more lasting effect than eight bushels of lime. The ammonia which they absorb and retain, more than replaces the nitrification obtained by liming, and the burning disintegrates very large quantities of alkalies. It is to the effect of burning, that the inexhaustible fertility of lands formed by the eruption of volcanoes is to be attributed.

Common salt I have also tried with success, at the rate of ten bushels to the acre. It gives to the cane a deep green color, and seems to prevent the growth of grass.

I observed that covering land with peas caused the formation of nitre. In Europe, nitre and saltpetre are both used upon growing plants, at the rate of about one hundred pounds per acre; it is probable, that sprinkled before the plow, here, when the land is first thrown to the cane, their effect would be similar to that of peas.

Much has been said of late on the subject of guano, and experiments made in Jamaica prove it to be a valuable manure for cane. Used there at the rate of one pound to every four feet square, or about twenty-seven hundred pounds to the acre, it caused cane to ripen earlier and to yield two hundred pounds more of sugar per acre, than that dressed with common manure. Those who made the experiment seem to think that one-third of the quantity used might have

been sufficient. Admitting the fact to be so, and supposing the ratoons to last two years, and to yield an additional quantity of two hundred pounds of sugar per acre, which is not probable, an outlay of nine hundred pounds of guano would, in the next three years, give an increase of four hundred pounds of sugar. Where other manure has to be purchased, as in Jamaica, and costs more than guano, this increase of product is a material advantage. But where deep plowing and peas do as well as animal manure, the additional product obtained by the use of guano would not pay for it. An experiment is now going on with it in my neighborhood; if it should make the cane fit for the mill earlier than it usually is, it would on that account be very valuable. In the mean time, I would recommend the use of it to a portion of my audience whom I have, till now, sadly neglected: to you, ladies, within your realm of fruits, flowers, and shrubs. There, as well as in the garden, when applied with intelligence and care, it does wonders, and I beseech you not to neglect the means it affords you of increasing the beauty and the comforts of your homes. When God, for wise purposes, doomed man to waste his energies in conquering physical obstacles, he placed you near him to cheer him in his weary task, to remind him that his toils had a worthy object on earth, and to recall him in his hours of repose to the consciousness of his moral existence. All about his dwelling that has the spirituality of beauty and grace, is by some mysterious tie connected with you, and you have an interest in its preservation. Nurse your flowers, then, as if they were a part of yourselves, and let your favorite plants have a cheerful and happy look. Above all, do not torment them into fantastic and unnatural shapes; remember, that the God who made them, gave each of them, as he gave each of you, peculiar forms of beauty, which knives and scissors cannot improve, and that trimming should be resorted to exclusively with the view to restore and preserve the natural shape of each species, as you resort to the mysteries of the toilet to make the perfections you possess conceal the slight blemishes which may accompany them.

Although, for want of time and of competent knowledge, I have confined myself to the sugar crop, my observations upon draining, tillage, animal manure, and peas, may be considered as applicable to the cultivation of cotton also. I would not recommend any course which would farther extend that cultivation; but, if the same crops could, as I believe, be obtained from half of the land that now produces it, the other half might be employed in raising provisions and other products, such as indigo, hemp, and tobacco.

On the subject of interchange of crops, I have nothing to offer. and I will now direct your attention to the improvements proposed in the manufacture of sugar.

Not less than six new methods have been partially tested, and are now offered for our adoption. We ought to be thankful for every effort of that kind, and encourage to a reasonable extent those persons who, in trying to benefit themselves, desire also to benefit us. But planters cannot be expected to incur the great expense which the adoption of most of those methods requires, till they have satisfactory evidence of their entire success. That evidence is yet wanting; there is in all much room for improvement. The process of

my friend, Thomas A. Morgan, of Plaquemines, is thus far considered the best, and he is far from claiming perfection for it. The increase in the quantity of sugar obtained by some of the innovators, is principally owing to the fact that they re-boil the molasses. This is done equally well by others in open pans.

A new apparatus, said to embrace all that has been found valuable in the others, is now being constructed at the Novelty Iron Works, in New York, for Mr. Valcour Aimé, of St. James, a gentleman distinguished for his enterprise, as well as for his practical knowledge of the subject. It may do better than the others, but, sir, all these new methods have the original fault of the usual process, their authors being wrong. They commence by creating large quantities of coloring matter in the juice, and then, by a great variety of means, they endeavor to extract that coloring matter first from the syrup, and afterward from the sugar, and in this, by the by, nobody has yet effectually succeeded. Let me explain my meaning.

If you cut in two a sugar-cane and examine the interior part of it with a magnifying glass, you perceive the crystals of sugar as distinct and as white as those of double-refined sugar. The object of the operator should be then either to extract those crystals without altering their color, or, if that be found impracticable, to separate them from the impurities mixed with them, while the juice is in its natural state, and yet contains but little coloring matter. Instead of this, the juice is limed while all the impurities are in it. In separating the feculencies from the juice and uniting them in large flakes, lime dissolves a portion of them and forms with them coloring matter which, we all know, at once discolors the juice, when lime is used in excess. Afterward heat is applied, either in clarifiers or in the *grande*; but most of the impurities found in the juice will decompose and burn at a degree of heat far below the boiling point, say at a hundred and twenty degrees of Fahrenheit. This is shown by the thick scales continually forming in the *grande*. From that degree of heat the decomposition goes on in the clarifier, till the juice is drawn, and continues in the *grande* so long as there are feculencies left. This decomposition greatly increases the quantity of coloring matter, so that, as the juice is being clarified, it loses in color what it gains in purity; and here let me show the relative value of the *grande* and of clarifiers as agents of clarification. In the *grande*, if it is well attended to, the scummings are taken up as fast as they rise. A portion of them is removed before they begin to decompose, and the process goes on, so that before the juice reaches the boiling point, nearly all the feculencies are removed, and the source of coloring matter is removed with them.

Clarifiers reach the boiling point much quicker, and cannot easily be scummed. The general practice is, to bring them to that point without scumming; to let the feculencies separate from the juice by cooling and by rest, and to wash out the clarifiers every second or third time they are filled. Heat and alkalies acting in them upon the accumulated feculencies of one, two, or three charges, dissolve a much larger portion of those feculencies than they can possibly do in the *grande*; the formation of coloring matter continues during the time of rest, and, accordingly, planters, after repeated trials, gener-

ally agree that juice well clarified in the *grande* has a brighter and a lighter color, and makes better sugar than that obtained from clarifiers.

But to return to my subject, the first object of research should be to find means of clarifying the juice, without creating coloring matter. It is said that presses, something like those used to repress cotton here, have lately been successfully employed in the West Indies, instead of rollers; that the juice obtained is much purer, and that a much larger quantity of it is extracted from the cane. If so, this will be a great improvement, and the first step of the process I would recommend. From juice thus obtained, or even from our own, I have no doubt that all impurities less soluble than itself, may be separated by mechanical means, before heat and alkalies are applied, or at least with a very small quantity of alkalies. All other liquids, all fatty substances and oils, except cotton-seed oil, are clarified by very rapid process. Cane-juice can no doubt be clarified by similar means, and if this were accomplished, the process of sugar-making would be very much simplified. The clarified juice might then be placed in an open evaporator, heated by the waste steam of the engine; then be limed and scummed if necessary, and concentrated to fifteen or sixteen degrees of the *pese sirop*; then purified by filtration through animal charcoal, if white sugar was wanted, or by rest for other qualities, and finally concentrated in vacuum pans of great power, such pans as Mr. Thomas A. Morgan now uses and which he tells me can only be made in America.

The superiority of the vacuum pan is not universally admitted, and we are told that in France it is superseded by open pans, similar in construction to those called here Mapes' Evaporators. However this may be, I cannot help believing that the vacuum pan has many decided advantages over all others; one is manifest; the sugar may be grained in the pan, and the granulation is completely under the control of the operator. He may accelerate or retard it at pleasure; he may carry it so far that sugar will not run from the pan, and will have to be taken out of it; he may so conduct the operation as to increase almost at will the size and hardness of the crystals. This last is an indispensable requisite, if the practice of draining sugar in pneumatic pans should be adopted. The atmospheric pressure is much too powerful for sugars boiled in any other manner; it breaks and destroys the crystals, and in a very few days sets the sugar to fermenting.

The pneumatic draining of sugar has many things to recommend it; the usual loss by drainage is avoided, sugar is got ready for market day by day, as it is made, and it may be bleached by pouring white syrup over it and forcing it through the mass. It is said that the process is attended with considerable loss in weight; but as all that drains from the pans may be boiled over once or twice, it is not easy to conceive how the loss can occur.

One observation on the subject of our buildings. Houses of unburnt brick are of late much recommended to the working-classes at the North, and to the settlers in the prairies, as being cheaper, drier, and healthier than those built of brick or stone. On reading the description of those buildings, in the excellent Report of the Commissioner of Patents, it struck me that they were substantially the same

as the old houses of Louisiana, known by the name of houses *en colombe*. Is it not owing to a change in our mode of building that the present race of our people is not as hardy and as long-lived as their ancestors were? In former days no one ever entered one of those ancient houses without finding in it a brace of octogenarians at least. With our old houses, old people seem to have disappeared; and to you and me, sir, who are not quite as young as we have been, it may be of some consequence to ascertain the cause of this phenomenon. I have no doubt it is in a great measure owing to the dampness of our modern dwellings; and though we may not persuade our ladies to return to the primitive architecture which was the pride of their great-grandmothers, we may at least adopt it for our laborers, and I will make the trial. The brick houses we have built for the purpose of increasing their comfort, are the cause of many of the maladies which afflict them.

After reviewing the means placed at our disposal to increase the value of our products, and to overcome the disadvantages of climate, and the gradual deterioration of the soil, allow me to advert to other disadvantages and dangers, which in the opinion of many threaten us with inevitable ruin. Two causes of alarm now exist among a large number of our fellow-planters: the diminution in the value of our lands, which will result from the annexation of Texas, and the destruction of our industry by a reduction of duties on foreign sugars, made before we are in a situation to compete with foreign producers. I am happy to say that I believe we have nothing to fear from either.

A person looking upon the map of America, and perceiving a large portion of Texas south of Louisiana, would naturally suppose that Texas is the better sugar region of the two. But the Louisianian who travels in mid-winter through the prairies of that naked land, exposed to the unmitigated fury of north-western winds, soon discovers that he has changed climate indeed, but that he has not come to regions in which tropical plants love to grow. I have it from a gentleman of undoubted veracity, Mr. John C. Marsh, that he has planted cane five successive years in the neighborhood of Galveston, and that he has never obtained ratoons from it. You may then consider it as a well-authenticated fact, that in Texas, as far south as New Orleans is, cane will not ratoon—the cold of winter destroys the stubble; I do not mean to say that it may not to some extent be cultivated there, but I assert that the competition will be by no means a dangerous one, and that upon trial it will be found that the Red river parishes of this State are better adapted to that cultivation, than the greater part of what has been called the sugar region of Texas.

Louisiana must remain the great sugar region of the United States; her climate and her soil are the best, and her geographical position is unrivaled. Reflect, sir, that almost every hogshead of sugar made here, is shipped without land carriage; that planters can always obtain from New Orleans in two or three days, any machinery they want, and that their supplies and their market are both brought to their own door. Compare this situation with that of the Texas planter, and you will admit that there is no room for apprehension.

There is a strong analogy between the cultivation of the vine in

Middle France, and that of the cane in Louisiana. During the first centuries of the Christian era, there was no wine produced in France, except Marseilles wine. More Southern Europe and the Isles of Greece were then the wine-growing regions. In the course of time, the monks of Aquitaine, of Champaign, and of Burgundy, God bless them! transplanted the vine to the shelter of their convent walls. Their effort were for a long time unsuccessful, but they persevered, and the great saints of those dark ages took a conspicuous part in the good work. At last their grapes attained maturity; they tasted the juice, and said it was good. Wine was subsequently made of it, and it is easy to conceive the joy of those holy men, when champaign first sparkled on their board, when the vintages of Medoc and Burgundy replaced in their cellars the rough beverages of Provence. The cultivation of the vine continued to increase and to improve, but the increase was so slow that wine was not exported from Bordeaux to foreign countries, till some time in the twelfth century. And now, sir, the great wine region of the world is that very portion of France, in which the introduction of the vine was the work of centuries.

How is it with the sugar-cane in Louisiana? It was introduced here at an early day from the West Indies, and cultivated to a small extent at Terre aux Bœufs, and in the neighborhood of New Orleans. Nobody at first imagined that sugar could be made of it. The juice was boiled into syrup, which sold at extravagant prices. In 1796, Mr. Bore, residing a few miles above New Orleans, a man reputed for his daring and his energy, formed the desperate resolve of making sugar. He increased his cultivation, put up the necessary buildings and machinery, and procured a sugar-maker from the West Indies. The day appointed for the experiment was come, and the operation was under way. The inhabitants of New Orleans and of the coast had assembled there in great numbers. But they remained outside of the building at a respectable distance from the sugar-maker, whom they looked upon as a sort of magician. The first *strike* came, and he said nothing; this they thought fatal, but still they remained fixed to the spot. The second strike was out; the sugar-maker carefully stirred the first, and then advancing toward the assembled crowd, told them with all the gravity of his craft, "Gentlemen, it grains!" "It grains!" was repeated by all. They rushed in to see the wonder, and when convinced of the fact, scattered in all directions, greeting everybody they met, with "It grains!" And from the Balize to the Dubuque, from the Wabash to the Yellow Stone, the great, the all-absorbing news of the colony was, that the juice of the cane had grained in Lower Louisiana. It did grain, it has continued to grain: it has grained the last season, at the rate of two hundred and fifteen millions of pounds, and if no untoward action of government prevents it, in ten years it will grain to the extent of much more than double that quantity. Prepare, therefore, to meet foreign competition. I tell you we can do so, as well as the wine growers of France, provided we improve the time that is left us, and remain true to the spirit of our national race.

The innate faculty of our people to subdue the physical world, their energy and self-reliance, their habitual disregard of discomfort, difficulties and dangers, have made other nations say of us, that we alone

could instil heroism in the common pursuits of life. With heroic determination, then, speed the plow; bear in mind that to go ahead without ever taking difficulties into the account, and by that means to succeed when others dare not undertake, is emphatically the **AMERICAN SYSTEM**.

In obedience to the following resolution adopted by the association we present the address delivered by ourself at the last meeting.

Resolved, That the thanks of this association be tendered to J. D. B. DE BOW, Esq., for his eloquent and instructive address, and that he be respectfully requested to furnish a copy for publication in their annual report, and also to publish the same at his convenience in the **COMMERCIAL REVIEW**.

Of course we feel no delicacy in this matter. We took the request of the association into respectful consideration. Ten months have passed without our compliance. As, however, there is some possibility of a little good being effected, we give the address, excluding those passages which are merely complimentary or apologetic, etc., etc. What we give, however, is long enough in all conscience. If we had the matter to do over again, we think we could do it much better, and make a more respectable affair. However, we were suffering from ill health at the time, and as it is *it is*—so let it go.

ORATION BY J. D. B. DE BOW.

What shall be done for agricultural science? How shall the indispensable wants of man be supplied with greatest facility, and the unwilling earth be made to yield the best and most abundant product for the longest time and with the least labor, to satisfy the desires and necessities, and produce the highest amount of comfort to the whole human race? This is the great problem in the elucidation of which the practical and benevolent minds of all countries are now engaged. Whatever Greek divinity it was that taught the art of culture to mankind, or showed them first how to fashion curious workmanship from the metals, better deserved Olympus than the "cloud compelling Jove," and performed an act more worthy of a god, than any other fabricated by inventive mythology.

The sanguinary and cruel strifes which have desolated the earth in all ages, have been justified in the providence of God as the means of checking the advances of population, and of preserving mankind from the famine and destitution attendant upon a too-crowded and over-stocked earth. Grave philosophical treatises have been presented to the world, announcing in startling terms this impending calamity. Ingenious moral and political expedients have been proposed to avert it. When Hobbes announced that war was the natural state of man, could he, think you, have much offended Malthus, who conceived that peace has a necessary tendency to starve him. Keep the members of the human race, said these philosophers, down to the capacity of the earth to maintain them all. Raise the capacity of the earth, say we, to satisfy all the requisitions of a rapidly augmenting population. Which is the nobler employ? The one is theoretic economy, ever over wise in its own conceits; the other is practical agriculture, based upon an unwavering confidence in the wisdom and the goodness of the First Cause, and the adaptation of the

earth to all the contingencies of the creatures who inhabit it. The great cardinal and fundamental doctrine of an enlightened political economy, may be stated to be the multiplication of product and subtraction of labor. Let two blades of grass shoot up where but one grew before. Let one man conduct the previous operations of two men. With these rules, I doubt whether we shall ever regard much the additional loaf of bread a day, which the neighbor dead leaves to be divided to the neighbor living.

The enlightened Voltaire held it as an axiom, that in the intercourse of nations the benefit of one could only result from the expense or loss of another. A doctrine so mischievous, you will agree with me, ought hardly to have found a convert, and yet we know that for gloomy ages of the world's history—alas! not even excluding our own—its baleful and blighting influences have been suffered to disturb the councils and pervert the actions of mankind. How slowly are we learning the great moral truth, that nations as well as individuals can benefit each other—that good is reciprocal—that all free intercourse in fairness must be, and in fact will be, one of the equivalents—that the distresses of our neighbors extend their effects beyond themselves, and that their prosperity is reflected over an equal area. It was Addison, I believe, who thought he could enjoy the beauties of his neighbor's grounds, delight his senses with the varied hues, the exquisite forms, the aroma of their ten thousand flowers, as much, perhaps, and in many cases even more, than the selfish owner who lorded it over them as his "empire sole." The jealousies of nations, as of individuals, are suicidal to the best interests of men. Philanthropy is a higher virtue than patriotism, as patriotism is higher than self-love. That orb which is revolving, and revolving, and revolving forever in a circle which never enlarges, and around a centre which is ever the *individual*, warms never with a genial heat—sunless and cheerless is its course.

The train of thought into which we have fallen, originated from two reflections: 1. The indisposition which has sometimes been noted among agriculturists to communicate what great observation, experiment, or research may have taught them, and by which they are enabled to realize better returns for their labors, or a superior quality of product for the market. 2. The notion generally current, that a nation ought to be more anxious to receive than to give; and that to be most prosperous is to want nothing whatever of the great world around and beyond us. The first of these levels a blow against industry and cordial reciprocity; the last strikes but too deeply at all commerce and civilization.

When you invited me, fellow-citizens, to address your Association, I was for some time undecided what plan to adopt in the selection and arrangement of subjects. In the first place, I deemed that agriculture was too wide a theme to admit of an indulgence in many details. To discuss almost any one of its numerous divisions, to make anything like a satisfactory exposition of late improvements, even in a particular branch, or to show the results of scientific researches and rigid experiments, would occupy more than the time you allot to this whole address. These matters, too, are usually so ably treated in the reports of the practical men who constitute your

committees. Need I remark, in addition, that if from the circumstance of my standing in the presence of agriculturists any inferences are to be drawn in favor of my capacity as an instructor in the arts they cultivate and advance, these inferences ought to be received, to use a legal phrase, with many grains of allowance. Let them be understood like those convenient fictions of the lawyers, ever raised, ever employed, yet never supposed to be any nearer the truth for all of that. Standing near me, however, and your guest upon this occasion,* it is my fortune to recognize one whose voice to-day would have been in your service, as his heart throbs with you, had we been allowed our way in this matter. Let him rest however, for it is *he* that claims it. A practical citizen, high enough to move with the philosophers, but never so high like them, or like the stars, as Bacon has it, that give little light, because of their so great elevation. An agriculturist to-day, a farmer preparing his stock, perchance, for the market—a statesman to-morrow, a diplomatist—an American senator and patriot, rousing grave senates with resistless eloquence, unmatched since his of yore—that man of Attica, who first

———“shook the arsenal,
And fulminated over Greece,
To Macedon and Artaxerxes’ throne.”

I have taken another view of my duties as your speaker. I will regard this Association to be, what it ought to be, and what to an extent it is, the representative of the great interests of Louisiana; its prime object being the advancement and permanent welfare of the State. This enables me to take a higher position than I could, were I restrained to the consideration of any one or more of the prominent subjects of agricultural knowledge. In such a view of your Association and my duties, I am sustained by the course of some of the most distinguished similar bodies in the Union. Many of them have their committees upon education, upon the state of the law as affecting the planters’ interests, on the condition of slaves, etc., etc. I therefore announce the State of Louisiana as a subject, and in examining into its present condition and future prospects, there will naturally fall under particular divisions, such reflections as may have occurred to me in relation to its agricultural and mechanic interests, and the best modes of advancing them.

I put the question to this respectable assembly, have we sufficiently regarded the position of Louisiana at the present time, and well considered what may be fairly and reasonably expected from her by the world at large? Has it occurred to us that in the mutation of time, and the sure working out of the problem of American history, Louisiana has ceased to be on the frontiers of the Union, and that in giving up her charge of the boundary, she has relinquished forever the right of being in any respect one step behind the most favored State of the Union? Of what a country has she become, as it were, the centre, and what incalculable influences may be exerted from her position! I care not where the sovereignty of Texas or the Rio Grande, California, Mexico, or the Western Indies may reside, by the laws of civil empire or of arms, for I know too well that there are other laws which have been insensibly exerting their secret and mysterious

* Hon. Henry Clay of Kentucky—an honorary member of the Association.

agencies, and giving to our institutions an influence, difficult to be estimated, all over the continent of America. I know that Louisiana, to say nothing of her position at the gates of a great river, which ripples in some of its tributaries almost in the distant Oregon, sits here by the gulf, as it were its sovereign, looking out upon all these immense and fertile countries at her very door—and that the great metropolis of Louisiana is to be the centre and the heart of all the great movements which, it needs no seer's eye to see, are to be worked out in the course of a generation or two, in the vast region from where the Sabine fixed its boundary, to where the isthmus connects the two Americas. It was a dream of La Salle to connect China with the Gulf of Mexico, through some supposed tributary of the Mississippi; but we, gentlemen, disregarding all rivers and tributaries, shall realize the vision by the amazing power of steam; traverse the country from ocean to ocean, centering in the lap of our already great city much of that Eastern trade which made Venice *what she was*, and left her, when it left her at last, *what she is*.

In such a prospect as is presented us in the view we have calmly taken, is there not enough to rouse the attention of every citizen of Louisiana? Yet, strange as it may seem, the subject in this light does not seem to have presented itself with all its force to those who are most concerned. The one great question, as I take it, now for the State is, how shall she be prepared for the new and responsible position she is to occupy?

"Commerce and Agriculture are the two great arms of our State's prosperity, but there must be a will to move those arms, and an enlightenment to will correctly. There must be a Cornelia to produce the Gracchi.

1. *The first duty of Louisiana, is the Education of her people.* Has she done this, and is she doing it, at this moment. Fellow-citizens, we were told that under our new Constitution there would be another and a better order of things. Let us hope so at least, so far as public instruction is concerned, since we have incorporated this in our fundamental law. Can we estimate the hundreds of thousands of dollars, that have been prodigally lavished by us in the support of schools and colleges, without any very appreciable advantage? The common school system of the State, with all the aid of parish assessments and legislative appropriations, has come to be regarded as a bye-word and a reproach. It is not a system from which anything but mortification and defeat can result. I know full well the difficulty with so thin and scattered a population as ours is, and as it is generally at the South, to establish and maintain adequate means of public instruction. An indefinite improvement may, however, be made within the limits assigned us. Shall a great and wealthy State pause to consider the difficulties, or enumerate the costs of distributing light and instruction throughout all its extent, and of bringing home to each embryo citizen, even the veriest offspring of beggary and want, the means of becoming a nobleman, in the only sense in which our institutions admit of nobility, and in which the might of intellect can make us all noble? I know of no patriot service more exalted than of that man, who will come forward in our legislative halls, to proclaim and carry out from an enlightened appreciation of the subject

in all its bearings, a reform such as the exigencies of the State so loudly demand.

II. If the first duty of Louisiana be found in the development of the minds of her rising population, *the second* is readily suggested, *in the maintenance of a sound and liberal government.* The laws of a people ever reflect their intelligence, though legal systems influence moral progress. I would, therefore, that our legislation be framed upon those safe principles of political science which have their foundations in knowledge and experience. In the utmost simplification is the perfection of government. Every unnecessary restraint is a crime against the principles of civil society. Liberty endures no arbitrary restrictions. National prosperity is secured in governing little and adequately, and not in governing much. Freemen only are the great heralds of civilization and advancement. They only permanently extend the area of knowledge, and are found on the outermost verge of thought, daring, and daring, and still daring on in their eagle flight to the sun. The night of civil and political liberty is the dark age of moral, social and intellectual progress. Let us look to it, then, in the administration of our government and our laws, that we elevate to office only the virtuous, the intelligent and experienced; that we reject all rash innovation, and realize, as near as may be, that idea of a perfect government in which the essence is virtue and intelligence. Standing here among you, fellow-citizens, on the site where the sense of the people has decreed the future seat of government to be, I could not but entertain these reflections and give expression to them. As you are made the conservators of the CAPITOL, the citadel of our strength, I would not have you less sleepless in your charge than those virgins of old, who watched forever, that the sacred fires enkindled on the altars of Vesta might be preserved lustrous and undimmed.

III. *An enlightened and well-governed people will foster and maintain those enterprises which are the natural results of free institutions; will see that the industry and energies of all classes are rightly directed and maintained, and that the advances of each important division of human labor are promoted by every legitimate means.*

COMMERCE, AGRICULTURE and ARTS, are the three great divisions under which a thousand minor ones array themselves.

I have said sufficient of the *commerce* of Louisiana on other occasions. It is an interest of our great city, which does not so much concern us to discuss here as it were in the interior. The enlightened men of that city will see to it, that the genius and enterprise of the East keep not so far that dizzy eminence which has in the past dwarfed us in the comparison.

Of our AGRICULTURE we have much to say and in detail. Around me are assembled the men who have collected here from every quarter, to unite in council upon the common interest and to devise modes of future effectual co-operation. Some of these are the parents of this Association, and I honor the patriot labors which through years of trial and discouragement have been bestowed by them, without one misgiving of a final triumph. I rejoice that there is a spirit abroad now to appreciate these services and to extend their influence.

Fellow-citizens: it is in this view that the appeal is made to you in behalf of the Association of Agriculturists and Mechanics of Louisiana, now convened in this town. It is believed, and can be demonstrated, that an enlightened co-operation of all the minds engaged in these pursuits will tend greatly among us, as it has done everywhere else, to advance the general weal. This much is demanded from us, and will we do our duty?

Agriculture is, without question, THE great interest of mankind. It is the breast, said the celebrated Sully, from which the State derives support and nourishment. Ireland in starvation and extending her arms for bread, will yet have yielded from her soil an amount in value, which shall exceed the value of all the merchandise which the merchant fleets bear annually away from our shores to all foreign climes together. Without assigning to the agriculturists the rank of being the *only* producers, as the celebrated school of Quesnay sought long to teach the world erroneously, it may still be insisted that the producers of agricultural wealth are the most numerous and most important of all.

I should be greatly delighted, did time admit, to trace with you the progress which agriculture has made since its first rude incipency "beyond the verdant walls of paradise," and mark in every age the influence which it has exerted and the relative degree of perfection attained. The limits of this address will not exclude us yet entirely from the field.

To say nothing of the culture of the earth, as mentioned in that ancient record, the Bible, nor to comment upon the beautiful fiction of Ceres, Proserpine and Triptolemus, which poetic fancy created to account for the origin of the arts, we know that the early princes of Greece labored at the plow with their own hands, and that in Homer there are allusions to the soil, its products and its labors, always beautifully conceived and highly colored. The Greek writers, Hesiod and Theophrastus, laid down at a very remote period, as then well understood, the principles of plowing, fallowing, irrigation, draining, ditching, manuring, etc.

The Romans interwove agriculture curiously in their religion and their superstitious rites. Their most distinguished statesmen and generals had patronymic names, derived from that of some vegetable, of which their ancestors were the successful producers—for example, Fabius, Cicero, Lentulus, etc. The leading men of the state toiled occasionally in the fields—as Cincinnatus, Curius, Dentatus, Fabricius and Regulus. The farm of Cincinnatus is estimated to have contained four acres of land only. Thus was it, as Pliny held, that the earth took pleasure in being cultivated by the hands of men crowned with laurels and decorated with triumphal honors. Cato, Varro, Virgil, Columella, Pliny and Palladius, renowned names, have been attached to agricultural treatises. Who can forget the graceful and beautiful allusions in the classics to the genial toils of the husbandman. What modern has ever expressed more sententiously the rules of successful culture than Cato? Do you ask, says he, what is first in good tillage?—to plow; what is second?—to plow; the third is to manure; the other part is to sow plentifully, to choose

the seed cautiously, and to remove as many weeds as possible in the season.

From the downfall of the Roman empire, until the Reformation, and even much later, industry in Europe was paralyzed, and agriculture, with the other arts of peace, declined, as barbarism and arms usurped the sway. The iron rule of the feudal system resolved the great masses of society into an absolute and hopeless bondage, fatal to all improvement. Fields were converted into forests for the chase. The domain of the king reached over all the lands in his realm, and he distributed them out to his favorites, to be held at his arbitrary will and pleasure. Thus did those lordly chieftains, independent of all the world but their sovereign, and brooking little dependence even upon him, assert their territorial rights, and parcel them out in minor proportions to the vassals, leet men, yeomanry or poople, with ingenious tenures, which exhausted the products of labor and enterprise, in the rapacious exactions of a suzerain lord and master. It required centuries to rescue man from this curiously elaborated system of feuds, which consecrating power and its abuses, imposed upon the senses by its gorgeous concomitants. But where there is insecurity of property, or rather no property at all, there can be no progress nor enterprise. It almost seems in this view that a sixth sense has been added to the constitution of man—the *sense of property*. It is the first to exhibit itself, and the last to disappear. Give us something that we may call our own—no matter what it is—how small soever—how insignificant—the child shows it in his toy—no matter; is it ours? May we use it, dispose of it, change, direct, alter, destroy it, consulting no other will or pleasure than our own? Oh, there is a luxury in property, and in the rights and privileges of possession and property! Profligacy and avarice are its extremes; industry, order, society, laws, government, are its means. A wise Creator fixes us thus to the earth, of which we are a part, on which we must live, and to which we must return at last, despite the seductions of transcendental dreams.

When the feudal system tottered upon its base, and fell at last in a mighty ruin, scattering its castellated remains over Europe, the world began that rapid stride in the career of progress, which has crowded into a generation the events of a previous thousand years.

In the picture which Europe exhibits at the present day, there is much to gratify every true friend of the race, and in the contrast much to disappoint. The once fertile Campania of Rome has become the resort of beggary, and where the garden of the Hesperides was placed, whole regions of Spain present the aspect of a desert. The country has been parceled out to the nobles and the clergy. "One-third of Spain belongs to the families of the Medina Celi, D'Alva, D'Aceda, and to the archbishops, bishops and chapters of Toledo." The vicious systems of man have destroyed all this fine country. The prospect, however, brightens as we regard Tuscany, which though two-thirds mountainous, and of but 8,000 square miles surface, contains yet a prosperous populace of 1,300,000; or the Piedmont and the Milanese, the garden spots of the world—vineyards and luxuriant pastures rise upon the delighted senses, amid naked, barren and precipitous rocks.

England and France, within the last few years, have made the most extraordinary progress in agricultural pursuits. We might speak of Britain particularly, where is practised, at the present day, the most liberal, enlightened and scientific husbandry in the world. Every foot of soil capable of production is made to teem with vegetable life, and lands improved to manifold their former value. In draining, alone, a subject now exciting such deserved attention, there has been conferred almost inappreciable wealth. Dr. Buckland tells us there are men now living, who can remember when 40,000 acres of land, belonging to the late Lord Leicester, now worth £40,000 a year, were nothing but rabbit warrens and rabbit heaths. *And the secret was draining.* A similar tract of land belonging to Sir Robert Peel, was swampy and altogether barren, until, by the same means, it was made to yield, in the first year, a splendid crop of turnips, in the second, one of barley, so luxuriant that the stalks could not support the ears, and fell prostrate to the ground. The expenses were repaid in two years, and a worthless field became a most profitable piece of land.

In the United States, the present may be considered the great age of agricultural reform. It was not singular that with such an abundant country as ours, the soil would be long cultivated without any special care, and with none of that economy which would preserve its vitality. The consequence has been, that lands which were the most fertile in the world, became at last almost irretrievably barren; and the sons, whose fathers grew wealthy, scarcely with an effort, are forced to submit themselves to exile from the paternal estates, sacrificing or abandoning them, to seek in new and virgin soils the support they cannot find at home. Alas! how long has this been so with many of our old southern climes—most particularly Virginia and the Carolinas—and how have their sons been scattered abroad by this reckless system! Taught by sad experience, these ancient commonwealths appear to be now engaged in earnest to recover what they have lost, and their citizens strain every nerve in devising means of regeneration.

In most of the States of the Union, efforts are being made to develop the resources of agriculture, which are proportionate to the subject.* The most usual of these means are the establishment of

* Agriculture from the rude state in which in former times it existed, has emerged and is becoming every day more and more reduced to the method and precision of science. The profound investigations of Liebig in the vegetable world have already created a revolution; a new and wide field of research is opened, and one that allures from the transcendent interests which are attached to it. The application of chemistry to agriculture, is a farther step in the progress of that Baconian philosophy, which addresses itself to the wants of man. By means of chemical processes, we stimulate nature, we develop and bring into activity latent and inert elements, or neutralize and destroy those which are noxious. We resuscitate soils that are exhausted and dead, and increase without limit those that are already vital and fruitful. Malthus need dread no more a world starving from over population, when the capacities of its soil may be augmented almost indefinitely by means within our control. It is gratifying to mark the new impulse which has been given to agriculture. We cannot refer, without enthusiasm, to the labors of Liebig, Boussingault, Thaers, etc. In our own country we are not without able laborers in the field. Agricultural surveys are being everywhere directed by State legislatures. We may particularly refer to New York, Virginia, S. Carolina, Alabama, etc. Agricultural Associations are rising in dignity with us, and journals devoted to this branch of industry, becoming valuable and complete. The attention of all parties seems to be at length aroused to the importance of the subject.

County and State Agricultural Associations, fruit, flower, and stock exhibitions, etc. Some of these are conducted in the most efficient manner, and exert a degree of influence we can scarcely estimate. There is an emulation excited which never sleeps again. There are essays and reports prepared, and perused by ten thousand readers; there are experiments made, and subjects discussed which are full of light. We have been watching the new spirit of our country, and thank God for it. Legislative appropriations are made to the extent of thousands for agricultural surveys, and all the mineral characteristics of soil are determined with a degree of precision and certainty, which renders it almost impossible to be deceived in its value. What an improvement too, in our agricultural publications, standard and periodical. Even the newspaper press regards it necessary to have a department for this subject, while chronicling the events of busy life. Our agricultural periodicals improve rapidly in the nature and value of their material. These, too, have come to be in requisition among the planters, to whom they are addressed, and they are liberally sustained; for what planter would be without such means of information? To be without a library of agriculture, is for a planter to be without the implements of his profession.* A lawyer without the civil code, would be in about the same condition and as wise. There, too, is the new feature of agricultural schools. We hear of them in different parts of the Union; in Prussia, France, Germany, Russia, Ireland, and Switzerland. A professorship has been endowed in the venerable Harvard; the same has been done in South Carolina, and we trust to see the example followed in every such institution. If we are ever to have the University of Louisiana, of which our constitution

* While upon an agricultural library, let us be allowed to suggest the best authorities to be consulted by the liberal agricultural student, disposed to perfect himself in the science, and to extend the influences of such knowledge throughout the country. Some of the works may be had in this city, most in our country, and all by foreign order.

Harte's *Essays on Husbandry*, London 1770; *Works of Arthur Young*, 9 in number, from 1771 to 1794, London; *Dickson's Husbandry of the Ancients*, Edinburgh, 1788; *Brown's Treatise on Agriculture and Rural Affairs*, Edinburgh, 1811; *Loudon's Encyclopedia of Agriculture*, London, 1844; *Low's Elements of Practical Agriculture*, London, 1838; *Principles of Tillage and Vegetation*, by Tull, London; *Kirwan's Manures*, London, 1808; *Davy's Agricultural Chemistry*, London, 1821; *Beaton's New System of Cultivation*; *Chemistry for Farmers*, and *Treatise on Soils* by Sprengel, 1831; *Liebig's Organic Chemistry*; *Johnston's Agricultural Chemistry*; *Works of Boussingault*, *Dumas and Mulder*; *Gardner's Farmer's Dictionary*; *Armstrong's Agriculture*.

To these should be added some of the agricultural periodicals of the country, a list of which we venture, on the authority of Mr. Burke.

FARMERS' LIBRARY by Skinner, New York, monthly—*COMMERCIAL REVIEW*, *New Orleans*, a journal of TRADE AND AGRICULTURE, monthly. The others are arranged according to States: *Maine Farmer*, Augusta, Maine, weekly; *Farmers' Monthly Visitor*, Concord, New Hampshire, weekly; *Boston Cultivator*, Boston, Massachusetts; *New England Farmer*, Boston, Massachusetts, weekly; *Massachusetts Ploughman*, Boston, Massachusetts, weekly; *New York Farmer and Mechanic*, New York, weekly; *American Agriculturist*, New York, weekly; *American Quarterly Review of Agriculture*, Albany, New York; *Cultivator*, Albany, New York; *New Genesee Farmer*, Rochester, New York, monthly; *Farmers' Cabinet*, Philadelphia, Pennsylvania, monthly; *Lancaster County Farmer*, Lancaster, Pennsylvania, weekly; *American Farmer*, Baltimore, Maryland, monthly; *Southern Planter*, Richmond, Virginia, monthly; *North Carolina Farmer*, Raleigh, North Carolina, monthly; *Southern Agriculturist*, South Carolina, dead; *Southern Cultivator*, Augusta, Georgia, monthly; *Alabama Planter*, Tuscaloosa, Alabama, weekly; *Planters' Banner*, and *Concordia Intelligencer*, Louisiana, weekly; *Nashville Agriculturist*, Nashville, Tennessee, monthly; *Ohio Cultivator*, Columbus, Ohio, weekly; *Indiana Farmer and Gardener*, Indianapolis, monthly; *Dollar Farmer*, Louisville, Kentucky, monthly; *Prairie Farmer*, Chicago, Illinois, monthly; *Michigan Farmer*, Jackson, Michigan, monthly.

speaks, will not the planters look to it, that that institution disseminates the principles of scientific agriculture? What the government has been doing through the medium of the Patent Office reports, would be of inestimable importance, if continued and improved in the manner which so readily presents itself. The Smithsonian Institute may be made, in addition to its other character, a great NATIONAL SCHOOL OF AGRICULTURE.

Fellow-citizens—Gentlemen of the Association: what are we doing for agriculture, and what do we propose to do? Certainly the state of this science is at a lower ebb here than in other parts of the Union. Our fields have yielded us such abundant fruit, that we deem it impossible they can do otherwise. We do but allow nature her own course, and she enriches without an effort. As Adam Smith used to say of those who rent land in England, we reap almost where we have not sown. But will this continue so always? Does not the human constitution often appear fresh and vigorous, under the most exhausting and destructive habits?—appear, we say, for disease and death almost inevitably close the scene! It must be so with us, if we abuse what God has bountifully given. When Deity proclaimed a sabbatical rest, even to the fields of the Hebrews, he proclaimed, at the same time, a great law, that the earth, like man, demands care and nurture, and that it is piety to exercise them. The economy of agriculture is to plant, that we may plant long, and “hasten slowly,” that we may quickly reach wealth. It might be long, very long, before our lands would lose their value, under the worst of all systems of cultivation, but the time must come at last. Why should it come at all? If it be necessary to spend upon the soil a portion of its income, it is a kind parent which repays with abundant interest every act of favor. The State allows eight per cent. interest, and none else; but an enlightened agriculture defies the law and pays you usury, even compound interest. I know there are men around me, who are even more deeply impressed with this truth than I am myself. The State, it rejoices me to say, has many such sons, and her prosperity will grow as their numbers increase.

The Society which I address was engendered by these considerations. It has existed several years, and held its annual meetings in this town. Exhibitions have been made, addresses delivered, and legislative aid granted, yet after all the association has not flourished, and has had but a small portion of the influence which belonged of right to it. Why is this? Why are we so much in the rear of other communities? Is the fault in the people, or where? I ask in vain. I know not how many of our parishes are represented here in convention, but I know that they should all be; that no consideration should prevent their uniting in a movement which addresses itself to the important interests of a great State. However, gentlemen, we will not despond. Though there is much to be done, it is not impossible. I would even say *conquer impossibilities*, for in truth there are none such to resolute and determined men. It is not alone our State Association we want. Let there be such had in every parish. These lesser bodies, consisting of neighborhoods, should often meet in social, though useful union. It would add many a pleasing hour to life.

* This subject will, we understand, be put in charge of the Professor of Chemistry.

Discussion of practical and agricultural subjects, previously assigned, would stimulate thought and experiment, infuse a liberal spirit, incite research and observation, and much of that emulation which is the secret of success, and which in honorable minds is a beautiful virtue.

Who is there that will lead the advance in these Parish Agricultural Associations? How simple their institution, and how important their results. From the numerous subordinate bodies the central one here would receive its annual delegates, reports, products, etc., for general and mutual interchange and instruction. I say *here*, for now that the legislators of the State are to convene in this town, its importance must be greatly increased, and the meetings of the Association and the attendance on the fair will be under greatly more favorable auspices. I would enjoin, then, that we suffer not another year to pass away with the same indifference as the past. It will not be creditable to us. How much more worthy of the human mind is the occasional employment we have suggested, than the listless ease, the unintellectual routine, the torpid life, and even the dissipation of thought and habits, in which the leisure hours of men are often occupied, and planters among the rest. Leisure may always be obtained for liberal pursuits. We never forget the hours which were devoted to them. We never regret a co-operation with our fellow-men for noble purposes. We have *lived* when employed in the study of great truths, valuable in being practicable, but not *because* they are so. There are pleasing memories of the hours we have spent:

"—— not in joys, nor lust, nor wine,
But search of deep philosophy."

The Agricultural Association will therefore aim to induce in our planters something of the spirit we have sought to inculcate. It will be preserved free from all private or party influences, that have done so much to disturb society. Its *officers* will be selected from the most experienced, intelligent and worthy. Its *committees*, the most important feature of the organization, will be arranged with special reference to the subjects upon which they are to report, and their opportunities of being acquainted with them. Its *premiums* awarded discreetly, and without a shade of prejudice or partiality. In the first efforts to attain these, and before a very complete system can be arranged, it is not improbable some errors may be made, and dissatisfaction result. But such can never affect the value and importance of the institution, incident as they are to every similar body, in every shape of its existence, and more especially in its infancy.

The prominent object of attention in an organized Society of Agriculturists, may be stated to be *the improvement of the staple crops of the State, and the introduction of new, productive, and profitable ones*. It addresses itself to the fields, and demands an improved and more liberal HUSBANDRY—to the gardens, and bids HORTICULTURE and FLORICULTURE crown our boards, and delight our senses. Nor is it mindless of the condition and improvement of the animal creation—THE STOCK that serve us in our labors, and minister to our wants.

The exhibition made to day at the Fair of the Association, creditable though it be, is only an earnest of what is intended, and what there are just reasons to predict, I shall not undertake to describe

what it will be for your senses to inspect. The two staples of sugar and cotton appear to have absorbed all the agricultural capital of the State. The sugar planter may congratulate himself, that from a variety of causes, but chiefly now from the limited range of the sugar region, and the increased demand for the article, from the openings of foreign markets, this staple has enjoyed, and bids fair for a long way in the future to enjoy, unrivaled prosperity. Its production, too, is on the rapid increase with us, but with no ground for uneasiness that it will ever be too large. The improvements in the culture, of late, in the quality, in the manufacture, so striking and important, are familiar to you all, and need not be dwelt upon here. Though much has been effected in a short time, there are many improvements still indicated. No other branch of agriculture requires more the aid of liberal science than this.

The cotton planters of Louisiana, in the results of the past and previous season, deserve much commiseration. An insect of fearful and voracious appetite has traversed their fields, and in whole regions of country, like the locusts of Egypt, left literally "no green thing alive." The advance in price, in consequence of an average crop in other sections, will not be sufficient to compensate for the reduced quantity, and it unfortunately happens that even the advance that has taken place will benefit but the comparatively few who have not been forced early into market. The future, I should however think, will be most auspicious to this class of producers, where they can be protected or preserved from the scourge which has visited their fields. It has been made evident that the consumption of cotton is advancing much more rapidly than the production, and, of course, gaining upon it. European stocks, that have influenced prices so much, have given way already, and it is not improbable at the expiration of the present year, they will be reduced very low, and in a few years become nothing. There are new markets for the staple opening on the continent of Asia, in Africa, and in China; even Japan will probably invite us, and the old markets of Europe, as well as our own country, increase daily in their demands. The competition of the East Indies ceases to be longer named, and one may dare affirm that the discovery in Europe, by which cotton is converted into an agent of detonation is but one among the many uses yet to be discovered, to which this *snowy fleece*, more precious than the "fleece of gold," will be applied.

It is not probable the agricultural pursuits of Louisiana, will be much diversified for a very long time to come. I am by no means persuaded that we have much to gain, by diverting our energies and our capital now into any new channels. Such are the wants of the world, it is reasonable to suppose the day very distant when there shall be a too great production of sugar, and I do not regret that circumstances are tending to make this the one great production of our State. No other staple is likely to yield more abundant returns. But let it not be supposed that any argument can be drawn hence for an exclusive devotion of the planter's whole life to a single subject, to the neglect of all others. A single pursuit, unrelieved, contracts necessarily the views and range of thought of the individual. He becomes a man of one idea—sees, hears, feels, knows, regards nothing

else—like a technical lawyer, incased in forms and precedents, and forever incapable of reaching that high “vantage ground” of the profession, of which Lord Bolingbroke speaks, and on which he recognized Bacon and Clarendon. It is one of the evils of such extreme division of labor, and devotion of one man to one pursuit, that it degrades a thinking being into the rank of a machine. It might be very well for trade, that ten men are employed in the manufacture of a pin; but it is a sad account, says Adam Smith, to give to one’s Creator, that a whole life-time has been spent in the production of a pin-head.

I would have the planters of Louisiana, as gentlemen and intelligent men, cultivate a knowledge of every department of that profession which they have made their own, though in practice confined to one department solely. Such a study is one of the most liberal and dignified, and tends in a high degree to elevate the whole nature and character of the student. Surely our planters will not complain of a want of leisure for this, and they will not point me to a more appropriate pursuit. I do *not* base the argument upon mere pecuniary considerations, for it is a higher and a nobler one. We are not here to attain wealth simply, but to *make wealth subserve all the great ends of our being*. We do not live to learn only such things as mere living demands. Pythagoras said truly, “He who knows only what he finds it necessary to know, is a man solely among the brutes.”

It would employ little if any labor, and draw nothing upon the time of our planters, if they would lay out and cultivate their grounds in orchards of such fruit as will thrive in our genial clime, introduce as means may admit exotics, nurture rare plants, and beautify their estates with vines, flowers, and shades, and exhibit thus the appearances of that true comfort and happiness, ever associated by the virtuous with ideas of rural life. I can conceive of no solitude more cheerless in the world, than an estate in the country, which while inhabited, is neglected, and suffered to fall to decay. God has so fashioned us, that we are improved in head and in heart when surrounded and associated with the beautiful in art or in nature.

We have heard it suggested, and believe it to be true, that the culture of the finer qualities of *tobacco* will be found very profitable to those in the State who have proper lands, and whose capital is not large. Indeed, we have seen some admirable specimens of this growth, both in the city on sale and here. The *olive* has been frequently suggested. The legislature has given encouragement to *silk*, which needs little effort to be successfully produced. And there can be no question that in our abundant waste lands, rice of a superior quality can be made a very considerable crop. Whenever our attention may be given particularly to these subjects, and the time will no doubt ultimately come, we shall find in them sources of great profit and wealth. At present, I suppose that any attention bestowed will be little more than relief spots in the otherwise monotony of our agriculture.

I cannot dismiss the subject of agriculture without remarking upon its great influences upon the character of society at large. In every

country the agricultural classes, or those who have an interest in the soil, in the lands, who are removed afar from the corruption of cities and the adverse influences of courts and power, are the bulwarks of the commonwealth, and the friends and supporters of sound government. They are never radicals. They ever deprecate rash innovations. They go for the government, while there is a possibility of preserving it pure, or of reforming it, and they declare only for REVOLUTION in that desperate contingency, when tyranny has overleaped all barriers, when hope has fled, and endurance longer would be a crime.

The poets in all ages have traced the charms of agriculture with touches of exquisite finish. They present us captivating and beautiful, yet not untrue, pictures of its genial labors, its dignity, its repose, and its independence. The finest illustrations in Homer are taken from the husbandmen and their pregnant fields. Hesiod is equally eloquent, when he touches upon rural life. Who would ever forget the graceful and thrilling passages which abound everywhere in the pages of Virgil.

The Romans cherished agriculture as from the gods. Cincinnatus, Dentatus, Regulus, Fabricius, etc., were planters, and devoted their leisure from cares of state to the culture of the soil. The pleasure seats of the leading Romans were their country villas. Hardy independence, sterling patriotism, enthusiastic devotion to liberty and love of country, and all the noble propensities, will be found in the agricultural classes. The virtues, too, of these classes are most likely to be preserved throughout all vicissitudes, and they have ever been conspicuous. The Hon. Daniel Webster, in his speech at Boston, in 1820, contrasted strongly the morals of the farming and other interests, showing an amount of crime in the latter as *twenty to one* greater than in the former. In the preservation of health, true enjoyment, and long life, the pursuits of agriculture have the great advantage. Cities hardly counterbalance these by their elegance, refinement, in telligence and luxury. Their frightful waste of life must be supplied from the cradles of the country. Physiologists tell us that in Paris there is scarcely a very old family. If they have not intermarried with new comers they have been lost, and even their names blotted out in a few generations. I am rejoiced, then, from the extent of our great Union, the immense territories, fruitful, and with almost every variety of soil and climate, and of unsurpassed fertility, an immense extent of forests yet unsubdued—I am rejoiced I say, that while our COMMERCE is whitening every sea, and our MANUFACTORIES are seated by every waterfall, the great and predominant influences of OUR AGRICULTURE will be felt in all time to temper and regulate the whole.

I shall not be thought guilty of any undue eulogy in the reflections which have occurred to so many others than myself. I am willing to leave them with you, and leave you to the enjoyments of the life you are capable of appreciating—to the life for which we might gladly exchange cities, that Cowper well remarks, "God never made"—to the rural retreat, where it will be your own fault if plenty does not smile around; if true comfort, if refined enjoyment, if contentment and happiness are not realized in the calm hours,

with nature for a companion to counsel you from her thousand varied forms :

"For who the melodies of morn can tell,
The wild brook bubbling down the mountain's side,
The lowing herd, the sheep-fold's simple bell?"

Or, lest I should be reminded of a topographical blunder in commending you to the charms of bubbling water-falls, mountains, and sheep-folds, even in this clime of the sun and floral luxuriance, now that your harvests are ended, and you have reaped from your toils sufficient at least for gratitude to an all-bountiful Providence, I will dismiss you with the admonition and counsel of honest and inimitable old Thomas Tusser :*

"In harvest time, harvest folk, servants, and all,
Should make altogether good cheer in the hall,
And fill out the black bowl with blithe to their song,
And let them be merry all harvest time long.
Once ended the harvest, let none be beguiled,
Please such as did help thee, man, woman, and child;
Thus doing with alway such help as they can,
Thou winnest the praise of the laboring man.
Now look up to Godward—let tongue never cease,
In thanking of him for his mighty increase;
Accept my good-will—for a proof go and try—
The better thou thriveest the gladder am I."

Art. II.—THE CONQUEST OF ILLINOIS

BY VIRGINIA, UNDER THE ARMS OF COL. GEORGE ROGERS CLARKE.

THOUGH complete success had attended him thus far, yet how critical was the situation of Clarke ! With a small army, far in the enemy's country, the most perilous objects for which he aimed still before him, the least faltering, the least disaffection, might have robbed him of his victory, and perhaps have overwhelmed him with ruin ! But his sagacity and address never forsook him, and seldom, if ever, has there been a display of greater.

* In the address as delivered there was a conclusion of several pages in relation to the Mechanic Arts ; but our paper is so long we will not insert it here, nor is it necessary. We however, referred to the mechanic classes, in something like this : "Of American Mechanics, it would be easy to extend the list, and speak of Fitch, the clock maker, who first conceived the idea of a steamboat, and experimented in our waters ; of Oliver Evans, the wagon wright, who found out how to adapt steam to land locomotives, and predicted as early as 1802, "The time will come when people will travel in stages moved by steam engines from one city to another, almost as fast as birds fly, fifteen or twenty miles an hour. A carriage will set out from Washington in the morning, the passengers will breakfast at Baltimore, dine at Philadelphia, and sup in New York, the same day ;" of Samuel Slater, the apprentice of Arkwright, and the father of American cotton manufactures ; of David Bushnel, who terrified the British on the Delaware shore by his "infernal" torpedo ; of Whittemore, the contriver of the card machine ; Perkins the nail machinist ; Blanchard and Eckford ; or, referring to those across the water, a mere mention is sufficient, of Sweeton, Ferguson, Crompton, Edwards, Arkwright, Watt, Brindley, Ramsden, Stanhope, Hohlfield, Boulton, to Telford, Cartwright, Whitehurst, Bramah, and a host of others, consecrated to art. It was asked but a short time ago, by some of our journals, and answered—Who are the mayors of London, Glasgow, Edinburgh, and Perth—mechanics ; so also were the mayors of New York, Washington, Savannah, Charleston and Boston.

He looked forward to the reduction of St. Vincent's; and in order to justify his invasion with so meagre an army, and to maintain his ascendancy, he instructed his men to speak of the Falls of the Ohio as his head-quarters, whence he could obtain reinforcements. In the mean time he established courts, with judges chosen by the people, and so ordered affairs as to conciliate their favor.

In order, then, to prevent the appearance of rashness, he pretended to be planning an expedition from the Falls against St. Vincent's. But this M. Gibault, the priest, thoroughly won to the American side, represented as useless, and promised to bring over St. Vincent's without a blow being struck against it. This proffer was gladly accepted; but perhaps not too readily, and on the 14th of July, 1778, the priest, with a Dr. Lafont as an associate, and a spy sent by Clarke, started for St. Vincent's. The mission was so successful, that in two or three days the inhabitants threw off the authority of Great Britain, and took the oath of allegiance to the Commonwealth of Virginia. A commandant was elected, and the American flag displayed, much to the surprise of the Indians. But they were soon informed by their French friends "that their old father, the King of France, was come to life again, and was mad with them for fighting for the English; that if they did not wish the land to be bloody with war, they must make peace with the Americans."

The time for which the soldiers had been enlisted had now expired. In his situation, it was necessary for Col. Clarke to exercise large discretionary powers, and he re-enlisted the men on a new footing, and also raised a new company of the residents, officered among themselves. He proceeded to garrison Kaskaskia and Cahokia. Those who wished to return were sent back under Col. William Linn, a volunteer, with orders to erect a stockade fort at the Falls of the Ohio, which they accomplished on the spot where Louisville now stands. M. Rocheblave was sent to Williamsburg under charge of Captain Montgomery. Clarke wished to treat him with respect and generosity, and to restore to him his slaves, but he behaved with such haughty insolence, that all such friendly intentions were abandoned. His slaves were sold for £500, which was distributed as prize money.

About the middle of August, Clarke appointed Helur, an excellent and prudent officer, in whom he greatly confided, the commandant of St. Vincent's, intending to give him a suitable garrison, as soon as he was able. These two officers now devoted themselves to the difficult but important task of conciliating the Indians, and disabusing them of the misrepresentations of the English "evil birds," as the emissaries were styled.

To a deep knowledge of human nature, Clarke added an intimate acquaintance with the Indian character, and by his bold address and profoundly wise policy, he accomplished more than the force of arms could have done. He gained the favor and excited the admiration of the most distinguished, and even of some of the most exasperated chiefs. The "Grand Door of the Wabash," son of the great Pontiac, "Big Gate," "Black Bird," and several others were successively brought over, and admitted that their minds had been poisoned against the "Big Knife."

Many of the conferences with these chiefs are fraught with interest, and disclose a tact and influence on the part of Clarke truly wonderful. I can mention only one instance. A party of Meadow Indians had been bribed to murder Clarke, but having been detected, were put in irons, and every day brought to the council. At length, when brought before Clarke, he ordered their manacles to be taken off, and told them :* "Everybody said they ought to die for their treacherous attempt upon his life, amid the sacred deliberations of a council. He had determined to inflict death upon them for their base attempt, and they themselves must be sensible that they had justly forfeited their lives ; but on considering the meanness of watching a bear and catching him asleep, he found out that they were not warriors, only old women, and too mean to be killed by the 'Big Knife.' But as you ought to be punished for putting on breech-cloth like men, they shall be taken away from you ; plenty of provisions shall be given you for your journey home, as women don't know how to hunt, and during your stay you shall be treated in every respect as squaws." Then, without taking any further notice of these offenders, Colonel Clarke turned off, and began to converse with other persons. This treatment appeared to agitate the offending Indians to their very hearts. In a short time one of their chiefs arose, with a pipe and belt of peace, which he offered to Clarke, and made a speech ; but at that time Clarke would not suffer it to be interpreted, and a sword lying on the table, he took it up and indignantly broke the pipe, which had been laid before him, declaring : "The Big Knife never treated with women." Several chiefs of other tribes now interfered to procure the pardon of the Meadow Indians, and to solicit Colonel Clarke to pity the families of these men, and grant them peace. Still the American officer, profoundly alive to the vulnerable features of the Indian character, told them "the Big Knife had never made war upon these Indians ; and that whenever Americans came across such people in the woods, they commonly shot them as they did wolves, to prevent their eating the deer." This mediation having failed, the offending tribe appeared busy in conversation among themselves, when suddenly two of their young men advanced into the middle of the floor, sat down, and flung their blankets over their heads, to the astonishment of the whole assembly, when two chiefs arose, and with a pipe of peace, stood by the side of these victims, and offered their lives to Colonel Clarke, as an atonement for the offence of their tribe. This sacrifice, they hoped, would appease the Big Knife, and they again offered the pipe. Clarke would not yet admit a reconciliation with them, but directed them, in a milder tone than before, to be seated ; for he would have nothing to say to them. "The alarm of these people appeared," said Clarke, "wrought up to so high a degree, that they appeared to think the tomahawk was suspended over the head of every one of their tribe, and that nothing but peace would save them." They thought that by putting these two young men to death, or keeping them as slaves, our countrymen might be reconciled. The offered victims kept their position, only now and then putting out their heads, as if impatient to know their fate. This affecting and romantic incident embarrassed the ready mind even of

* Butler's Kentucky, pp. 73-4-5.

Clarke ; he had always, he says, intended to be persuaded to grant these Indians peace, but with a reluctance that should enhance its value. The assembly was all silence and suspense, with anxiety to know the fate of the victims ; while Col. Clarke, deeply affected with the magnanimity of these rude children of the forest, declares he " never felt so powerful a gush of emotion over his mind, or ever so incapable of speaking, from the impulse of feeling." He ordered the young men to arise and uncover themselves ; he then said " he rejoiced to find that there were men in all nations ; that these two young warriors (pointing to the victims), who had been offered by their tribe, were at least a proof for their own countrymen. Such characters were alone fit to be chiefs, and with such he liked to treat ; through them the Big Knife granted peace to their tribe, and he took them by the hand as the chiefs of their tribe." They were immediately introduced (with no slight change of countenance, which they could not, with all their efforts, entirely suppress) to the American officers, as well as to the French and Spanish gentlemen who were present, and lastly, to the other Indian chiefs. They were saluted by all as the chiefs of their tribe, and Clarke immediately held, with great ceremony, a council, in which peace was settled with their people, and presents granted to distribute among their friends. Colonel Clarke was afterward informed that these young men were held in high esteem by their people ; and that the Americans were much talked of on account of this incident.

For his success with the Indians, no doubt Col. Clarke was much indebted to the friendship of the French. To M. Gibault the Legislature gave a vote of thanks for his valuable services.

The government of Virginia were duly apprised of the successes of her arms, and in October, 1778, an act of assembly was passed to establish the County of Illinois.

The law recited the deeds of the gallant little band, and provided that a temporary government, adapted to the situation and wants of the people, should be erected ; that their religion and civil institutions should be respected ; that protection should be extended to them ; and goods supplied to them and the friendly Indians. Perhaps the establishment of this extensive *county* may sound strange to some of our readers, but in those days such cases were not uncommon. Tennessee was once the " County of Frankland," belonging to North Carolina. Kentucky was once a county of Virginia, and it, together with a large part of Western Virginia, was once embraced in the County of Fincastle, which was divided in October, 1776. The settlements planted near the Atlantic gradually spread into the interior. That part which was populated was divided off into parishes and counties of convenient size, and then there was a vast frontier county, embracing the rest of the territory. Thus, even the County of Henrico was once the frontier county, and included many of the counties now laid off to the west of it.

In December, 1778, Gov. Hamilton, the British commander at Detroit, made an expedition against St. Vincent's, and re-took it. Of the defense made by Helur there is the following anecdote :

A man named Henry, constituting his whole garrison, planted a cannon in the open gate of the fort, while Helur stood by with a

lighted match. They boldly challenged Hamilton to "halt." He demanded a surrender, but Helur answered that no one should enter there until he first knew the terms; whereupon Hamilton replied that they should have the "honors of war." What must have been Hamilton's surprise and mortification when only two men marched out with the "honors of war!" Such is a specimen of Clarke's followers.

But a storm now seemed to be gathering over them. Hamilton was raising a large force of British and Indians, and laying up stores and ammunition, not only for the ruin of Kaskaskia in the spring, but for the reduction of Fort Pitt, and even of all West Augusta. For this great scheme, his preparations were truly formidable, and but for Clarke's opportune victory, it is impossible to predict what would have been the consequences to Virginia. Two hundred Indians from Michilimachinac, and five hundred Cherokees and Chickasaws were to join the British, and cannon and every equipment were furnished by the Governor of Canada. Clarke made all the preparation he could, by concentrating his force, and fortifying his position. Without assistance, or even any communication from Virginia (in a letter to Gov. Henry of April 29th, 1779, he says that he had not heard from the executive for nearly twelve months), his situation seemed almost hopeless; but his heart quailed not. Fortunately, Col. Vigo, a Spanish merchant, arriving from St. Vincent's, informed Clarke that Hamilton, in order to keep his gathering forces employed, had dispersed them against Kentucky, and to guard the Ohio. With that firmness and decision for which he was so conspicuous, Clarke determined at once to attack him; "For," said he, "I knew if I did not take him, he would soon take me." As soon as the expedition was resolved on, the citizens of Cahokia and Kaskaskia raised two companies for it. A large Mississippi boat was fitted out as a galley, mounted with four guns, and manned by forty-six men, under Capt. John Rogers. They were to force their way up the Wabash, nearly to the mouth of White river, suffer no one to pass, and to wait for orders.

On the 7th of February, 1779, with only 170 men, French and Americans, the march was commenced. The season had been wet, but, fortunately, the weather was then comparatively mild. Still, their route lay across the submerged lands of the Wabash, and they were compelled to wade miles through the water, from two to four feet deep, and which must have been most uncomfortably cold. Though unincumbered with baggage, and filled with the ardor of self-preservation, such were the difficulties of the journey, that their progress was slow. When they reached the Little Wabash, the fork of the rivers was covered with water, which extended five miles from bank to bank. Much amusement was created by the fertile expedient of a little drummer, who mounted the head of his drum and was safely ferried along by some of his taller comrades. The fatigues of the march were also greatly relieved by festivities, dances, and games. Still, it required all Clarke's remarkable power and address to sustain the spirits of his soldiers. On the 18th, after surmounting obstacles and enduring hardships scarcely inferior to those which have immortalized the march of Hannibal through the Thrasimene

marsh, they came within nine miles of their destination; but a large body of deeper water still stretched before them. Canoes in sufficient quantity could not be procured, and nothing was seen of the galley. If they waited to build boats, they might starve for want of supplies. From the captain of a boat they learned that the French inhabitants were very friendly disposed, and this gave them courage; but, on examination, the water was found to be up to their arm-pits. The difficulty and fatigue of wading in running water of such depth are incalculable; and in an unguarded moment, Clarke gave way to expressions of despondency, which instantly affected the whole troop. But perceiving his error and dilemma, he mixed some powder with water, blacked his face, and ordering the officer next to him to follow his example, plunged in. This droll device diverted their desponding thoughts, and the whole followed without a murmur. A favorite song was raised, and every voice joined in the chorus. When they had reached the deepest part, whence it was intended to transport the men in two canoes—all they had—a foot-path was discovered by their tread, and rightly supposing it to pass over the highest ground, they followed it, till it brought them to the "sugar camp," where they found about half an acre above water. Here they rested. On setting out again, Clarke made an animating address; but his eagle eye, perhaps, detecting signs of faltering, he ordered Bowman to fall back with twenty-five men, and to shoot every man who refused to go forward. This order, however, was received with huzzas, and every man followed his intrepid leader. As they advanced, the inspiring, but deceptive intelligence was given, that the water was getting more shallow; and again would arise from the front, the seaman's cry of "land! land!" and until they discovered its design, the cry that broke forth from the foremost ship of Columbus, as it first approached the new world, was scarcely more cheering.

When, after a toil of five days, as some historians say, others three, they reached the opposite shore, many fell forward completely exhausted, their bodies still half immersed in the water.

Whenever they could get hold of pieces of floating timber, they derived some support; but much of the way they had nothing to lay their hands on. Half of a buffalo, which they had captured with some corn in a canoe, made into broth, greatly refreshed their famished and exhausted frames. And now, being so near the object for which so much had been undergone, every man was the more resolved to do his part.

By a prisoner, Clarke sent a bold message to the town, "that he would take possession of it that night." This produced the desired effect of enhancing their idea of his strength, and encouraging his friends. It was not thought that the expedition had come from Kaskaskia, in the existing stage of water, but that it was a larger one from Kentucky; and the friends of the British were even afraid to give information of its arrival to the fort.

On the evening of the 23d, before marching against the town, in order to increase the appearance of their numbers, the little band were marched and counter-marched around an eminence in view of the town, at the same time displaying several sets of colors brought by the French. At seven o'clock the attack was made. The town

surrendered with joy, and assisted in the siege of the fort. The attack was commenced on the fort by only fourteen men, under Lieut. Bailey; but the British attributed it to the idle salute of some drunken Indians, who had before acted in a similar manner, until a man was shot dead through a port hole. Helur and his large garrison, Henry, were still prisoners. Through Henry's wife, who lived in the town, but every day had access to her husband, Clarke got information respecting the fort, and the situation of Helur's quarters. Helur is said to have been much addicted to apple-toddy; and one of Clarke's men asked permission to let them fire, and knock a little dust into Helur's toddy; for he knew he had some on the hearth. Helur and Hamilton were engaged playing piquet. When the bullets began to rattle against the chimney, Helur jumped up, swore it was Clarke, and they would all be taken; "but the d—d rascals had no business to spoil his toddy." Seeing some of the garrison at the port-holes, Helur told them to take care, or their eyes would be shot out. Just then, one of them did have his eye shot out; whereupon Helur exclaimed, "I told you so." These incidents within, no doubt, aided the assailants without. Hamilton had appealed to Helur, to know "if Clarke was a merciful man."

The besiegers had nearly exhausted their ammunition, and the galley had not yet arrived; but luckily, whether by accident or design, a supply that had been concealed by the French was found, and the assault became more vigorous. As soon as a port-hole was opened or darkened by a form, the rifle bullets told with unerring effect.

After the moon had gone down, Clarke threw up an intrenchment within rifle-shot of one of the strongest batteries of the fort, and at morning poured in such a shower of well-aimed shot, that in fifteen minutes he silenced two pieces of cannon, without having a single man even wounded. Clarke demanded a surrender, but Hamilton haughtily replied, "that he would be awed into nothing unbecoming a British subject." The assailants were now eager to storm the fort, but Clarke wisely repressed such rashness, waiting for the arrival of the galley with the artillery. But Hamilton, finding his guns so badly mounted as to be almost useless, while the rifles proved most fatal, proposed a truce of three days, which Clarke refused, and demanded a surrender at discretion. Hamilton then asked a parley, and a meeting was held in the church, a Major Hays, Helur, and other officers being present. Hamilton still refusing Clarke's terms, Helur endeavored to soften them, but was reminded that he was a prisoner, and had no right to speak on the subject. Hamilton then offered to release him, but Clarke would not accept his release on such terms. Notice was then given that the firing upon the fort would be resumed in fifteen minutes. When they were about to separate, Hamilton asked Clarke, privately, why he had rejected his liberal offers. "Because," said he, with assumed severity, "I know that the principal Indian partisans from Detroit are in the fort; and I only want an honorable opportunity of putting such instigators of Indian barbarities to death; the cries of widows and orphans made by their butcheries, require such blood at my hands."

"Pray, sir," inquired Major Hays, "whom do you mean by Indian partisans?"

"I consider Major Hays one of the principal," said Clarke.

Hays, alarmed at this cutting and unexpected reply, turned pale, and trembled so that Hamilton blushed for him, and the indignant Bowman could scarcely restrain his contempt.

Clarke now told Hamilton that he would submit his proposals to a council of war, and send the result with a flag. A council having been held, it was agreed to moderate Clarke's terms; and the fort was surrendered on the 24th of February, 1779. The American flag was hoisted, and thirteen cannon (that still honored number) fired in commemoration of the victory.

In the midst of the attack on the fort, one of the detachments of Indians employed by Hamilton, came marching in with two prisoners. Much to their astonishment, they were soon attacked and dispersed, nine of them being taken, and the two prisoners released.

Other auspicious circumstances attended this brilliant success. A convoy of goods was on its way from Detroit. Clarke dispatched sixty men, in boats mounted with swivels, who intercepted and took it. The mail from Canada to Gov. Hamilton was brought to Clarke, and their joy still farther augmented by the safe arrival of his express to the Governor of Virginia, bearing the vote of thanks of the General Assembly for their gallant reduction of the country about Kaskaskia. Such a series of fortunate occurrences, together with their preservation during their tedious and perilous march, well justify the belief that they were shielded and guided by Heaven. He who views the whole history of our Revolution, with a proper recognition of God's governance over nations, must be convinced that it was the providential direction of a great movement in human progress.

By the various successes at St. Vincent's, one hundred and nineteen prisoners in all, a quantity of military stores and goods to the value of £100,000, fell into the hands of the victors; the powerful armament of Hamilton was prevented, and the coming spring, instead of witnessing his threatened devastation of Kentucky and "West Augusta," saw him and his principal officers captives in Williamsburg. Hamilton was a brave man and accomplished officer; but Girardin says he possessed a barbarous and tyrannical disposition. He is spoken of, also, as the chief instigator of the enormities perpetrated by the Indians. From these grave imputations, Professor Tucker, who knew him personally, vindicates his character. But though he may not have been the incarnate fiend which some represent him, still his conduct deserves the severest condemnation. His conduct in refusing to give his parole in Williamsburg, shows his imperious and contemptuous disposition; and this may well have led him to the acts laid to his charge. While he was in custody, Governor Jefferson thought it right to retaliate upon him for some of the cruelties inflicted upon American prisoners.

Detroit alone remained unconquered; and Clarke would then have led his eager and elated troops against it; but as his force was small and reinforcements had been promised by the Governor of Virginia, he concluded to wait for them. From information afterward received there was no doubt that an expedition against Detroit would have

been successful; but it was then too late to seize the golden opportunity, for the post had been reinforced and strengthened.

Helur was once more put in command of St. Vincent's, and Clarke returned in his galley to Kaskaskia.

By these conquests the jurisdiction of Virginia was extended over the territory now comprised in the States of Ohio, Indiana and Illinois, and maintained until the close of the Revolution. Had she not undertaken them, it is hardly probable that the Continental arms would have been turned in that direction; and besides the continuance of the Indian ravages, Great Britain, at the close of the war, would have been in possession of that large and immensely valuable region. Would she ever have relinquished it by the treaty of peace in 1783? It can hardly be supposed that she would. She has never shown such a disposition to relinquish her footing here, when she had claims for it; and she would have held Illinois as she does Canada and a part of Oregon. It may be said that the States would not have concluded peace without obtaining a title to territory thus situated. They would not now; but in 1783 their situation was far different; and those principles of territorial extension since and now so strong, then had no existence. The States, too, after the peace, still had English and French and Spanish territory all around them. It is true, that the County of Illinois was within the chartered limits granted to Virginia; and when Gov. Henry first sent Clarke against it, he said that its inhabitants certainly were within the limits of Virginia. But Great Britain, deriving a title to it through France, and being in possession of it at the close of the war, would not have respected the charter claim of a revolted Colony derived from herself. These achievements, then, by the *unaided* arms of Virginia, while they confer such glory upon Clarke and his followers, have also brought this wide and fertile territory to the Union, to which Virginia generously gave it. This will farther appear, when we advert to the efforts made by France and Spain, in behalf of themselves and England, to deprive us, in the treaty of peace, of some of the rights and possessions which we now hold most dear. They even desired to confine our young republic east of the Alleghany mountains; and but for the firm and patriotic resistance of John Jay, our borders might have been far different from what they were. It must at least be admitted that whatever claims we had west of the Alleghany, were greatly strengthened by the conquest of Illinois, which must have operated materially upon the negotiation. Even after stipulating to surrender her posts in the North-west, with what dilatory reluctance did England relinquish them. Mr. Jefferson, when governor, foresaw the importance of fortifying our western claims, and, in 1780, sent Clarke to establish Fort Jefferson, on the Mississippi, five miles below the mouth of the Ohio, to secure our claim to the "Father of Rivers," as our western boundary.

When Prescott had finished his Conquest of Mexico, he hesitated to break the unity of history by proceeding farther with the life of his hero, Cortes. To compare small things with great, if I were writing regular history I might not be encouraged even by his successful example, to proceed farther with the life of Clarke; but if my readers be not already as tired wading through this narrative, as

Clarke and his men were through the waters of the Wabash, perhaps they may inquire, what became of the victor of Kaskaskia and Vincennes? He died at his residence, near Louisville, Kentucky. He planned and conducted many other expeditions; among them a prosperous one against the Indians at Chillicothe, in Ohio. But some of them were unfortunate. Indeed, he seems to have lost some of the decision and energy for which he had been distinguished; being weakened, perhaps, by too great an indulgence in conviviality. He attained the rank and honor of General; and was no less useful and efficient in many civil employments than in military. He was dissatisfied with the return made him by Virginia, and it is said that his private property was swept away by suits for public supplies, owing to the delay in settling his accounts.*

A sword had been voted him in 1779; but afterward, in mortification and discontent, he broke it and threw it away. How unworthy this was of the Clarke of 1778;—and he seems himself to have thought so;—for a man should have something of the same feeling toward his country that Job had toward God, “Though he slay me, yet will I trust in him.” If he be a patriot only when he receives or expects smiles and favors, his patriotism does not deserve the name. But Clarke was, in many respects, an uncommon man, and entitled to earlier remuneration for his valiant services, for which we should honor him and cast the veil of charity over failings which were not a part of his original character. In 1812 the Legislature voted him another sword with appropriate devices, and a pension of \$400 a year; and afterward a grant of land opposite to Louisville, in the country which he had conquered.

ART. III.—PRODUCTIVE ENERGIES AND SPIRIT OF MASSACHUSETTS.

DURING the past summer we had the satisfaction of visiting Massachusetts, and inspecting for ourselves the extraordinary enterprise and industry which has given it character among the first of ancient or modern States. All the documents were kindly put into our possession by the Hon. J. G. Palfrey, Secretary of State, from which the most complete notions may be formed. Whatever displeasure as a Southerner we may have expressed, and however often we may have expressed it, in relation to the unauthorized and illiberal course pursued by Massachusetts in reference to our institutions and our rights, we cannot but admire her in the position in which she is truly admirable, and publish her honor to the world. As a great sister of our confederacy, we are bound to respect and love her, despite even of her faults. The paper which we now present will be in this spirit of candor and fellowship, and it is our intention to present similar papers, having a like reference to each of the States of our Union. In this matter, as in others, we must solicit the aid of their citizens. The State is supposed to have derived its name from one of its

* Clarke had, perhaps, been rather bold sometimes in “assuming responsibility” for the State; and then, too, those who best knew and appreciated his services, were succeeded in office by others who felt less interest in his affairs.

tribes of Indians. The stormy and troubled periods of its early history will be at once called to memory. Bancroft, one of her own sons, has done ample justice to this epoch—moderating, as much as could be, the asperities it so frequently presents.

There are fourteen incorporated counties in the State, their charters dating from 1643 to 1812. There are also an immense number of towns or districts, presided over by Selectmen, from 3 to 7 in number each.

The college and school system of Massachusetts is the most complete of our times. A Board of Education was established in 1837. Large annual volumes of Reports and Abstracts have been published regularly from that time. The Secretary of the Board, Horace Mann, has published, for several years, an Educational Journal. There are also Normal schools and Teachers' Institutes, for the preparation of instructors. The number of lyceums and public libraries in the State evidences the great educational spirit. There is an Athenæum, an Academy of Arts and Sciences, a Society of Natural History, and three Musical Associations in Boston, also an American Oriental Society, an American Statistical Association, and a Historical Genealogical Society. There are three Historical Societies in the State: at Boston, at Dorchester, and at Salem; also an American Antiquarian Society at Worcester. The following table will show the number of Agricultural Societies, and the amounts they have received from the State's munificence:

AGRICULTURAL SOCIETIES OF MASSACHUSETTS.

	Date of Incorporation.	Date of First Payment.	Total amount received.
Massachusetts Society for promoting Agriculture	March 7, 1792.	Oct. 29, 1817	\$18,300 00
Western Society of Middlesex Husbandmen	Feb. 28, 1803	Jan. 12, 1820	14,340 80
Name changed to Society of Middlesex Husbandmen and Manufacturers ..	Jan. 24, 1820		
Berkshire Agricultural Society*	Feb. 25, 1811..	Oct. 29, 1817	13,736 50
Hampshire, Franklin, and Hampden Agricultural Societies	Feb. 19, 1818..	Oct. 13, 1819	16,200 00
Worcester Agricultural Society	Feb. 23, 1818..	Jan. 12, 1820	16,200 00
Essex Agricultural Society	June 12, 1818..	Jan. 12, 1820	15,140 40
Agricultural Society in the County of Plymouth	June 11, 1819..	Oct. 27, 1820	12,884 49
Bristol County Agricultural Society ..	June 14, 1823..	Nov. 9, 1824	7,346 32
Agricultural Society of the County of Hampden	March 5, 1844.	Nov. 21, 1844	1,200 00
Barnstable County Agricultural Society	March 15, 1844	Feb. 11, 1845	468 00
			115,816 61

There are two Horticultural Societies; the Fair of the one at Boston, in September last, we attended, and were surprised to witness the show of splendid fruits and flowers from such a region. There are two Institutes for the Insane. We cannot even refer to the various religious associations. Mr. Elliott, of Boston, estimates the

* The cattle show and fair of this Society, at Pittsfield, in 1814, was the first held in this country.

charities of Boston for thirty years past at near \$3,000,000 in all, private and unseen benevolence being of course not included in the estimate. Among the numerous societies we note one for the *prevention of pauperism*, one for *penitent females* (we suppose of the town), and one for the *aid of discharged convicts*. The *Non-Resistance Society* is characteristic, as is also the *Anti-Slavery*, with 25 auxiliary, and God knows how many *Abolition Societies*, which began, perhaps, as Anti-Slavery. There is a Society for the *Abolition of Capital Punishment*. Massachusetts abounds in Banking Institutions, as we shall see by-and-by. There are 38 Institutions for Savings in the State. The Railroad Corporations would occupy a chapter of themselves.

The following table and extract is taken from Dr. Chickering's admirable work published last year.

POPULATION OF MASSACHUSETTS, BOSTON, &C.

MASSACHUSETTS.					BOSTON.				COUNTRY TOWNS.			
Years.	Census.	Increase in 10 years.		Average increase per cent. per an.	Census.	Increase in 10 years.		Average increase per cent. per an.	Census.	Increase in 10 years.		Average increase per cent. per an.
		Amount.	Per cent.			Amount.	Per cent.			Amount.	Per cent.	
1790	378,787	....	....	....	18,320	....	....	....	360,467	....	....	....
1800	422,645	44,068	11.63133	1.1065	24,937	6,617	36.11899	3.132	397,908	37,441	10.39680	.9306
1810	472,040	49,395	11.63128	1.1065	33,787	8,850	36.48913	3.093	438,253	40,345	10.13927	.9704
1820	523,287	51,247	10.89649	1.0359	45,398	9,511	38.15284	2.511	479,869	41,736	9.52226	.9137
1830	610,408	87,121	16.64879	1.5519	61,392	18,094	41.78945	3.553	549,016	69,027	14.38095	1.3327
1840	737,700	127,292	20.85359	1.91213	93,383	31,991	52.10939	4.283	644,317	95,301	17.35851	1.6135
Increase in 30 years ..	358,913	91.75	....	....	75,063	409.73	....	....	283,850	78.74	....	....
Census, 1790	378,787	....	....	....	18,320	....	....	....	360,467	....	....	....
Census, 1840	737,700	....	....	....	93,383	....	....	....	644,317	....	....	....

It will be seen that the increase of the whole population for the first 10 years was nearly equal to that in the 2d period of two months' less duration, but greater than that in the third, which alone embraced ten years and two months. In the last two periods, there was decidedly a larger increase than in either of the first three periods. The increase of manufactures from 1820 to 1840, greatly checked the emigration to other States.

The increase of Boston and other parts of the State, from 1810 to 1820, was decidedly less than during any other period; and during the last two periods it was decidedly greater than during the first two periods.

By adopting 244,149 as the population of Massachusetts in 1765, we find that the increase in the twenty-five years was 134,638, from which we deduce the average increase of 9.1811 per cent. in five years; of 19.2054 per cent. in ten years; and 42.0992 per cent. in twenty years. In thirty years the increase at the same rate would be 169,415, or 69.3920 per cent. At the average rate of 9.1811 per cent. increase in five years, the number would be 266,565 in 1770; 291,039 in 1775; 317,760 in 1780; 346,934 in 1785.

The average increase of Massachusetts, in each period of ten years, from 1765 to 1790, was 19.2054 per cent.; and from 1790 to 1840, 14.2606 per cent.

The average increase of Massachusetts, in each period of twenty years, from 1765 to 1790, was 42.0992 per cent.; and from 1790 to 1840, 30.5551 per cent.

The average increase of Boston in each period of ten years, from 1790 to 1840, was 38.506 per cent.; and of the rest of the State, only 12.3173 per cent.

The increase of Massachusetts, from 1765 to 1840, was 493,551, or 202.1515 per cent.; of Boston, 77,863, or 501.6945 per cent.; and of the rest of the State, 415,688, or 181.8177 per cent.

The average increase of Massachusetts, from 1765 to 1840, in each twenty-

five years, was 44.5688 per cent.; in each twenty years, 34.2950 per cent.; in each ten years, 15.8857 per cent.; in each five years, 7.6503 per cent.; and in each year, 1.4853 per cent. This last is .1433 per cent. per annum greater than 1.3420 per cent., the rate from 1790 to 1840.

It will appear from these statements, that the average increase of the population of Massachusetts was greater from 1765 to 1790 than it has been since. Had the rate continued the same the number would have been 911,749 in 1840. Also, the increase of Boston was, on an average, much less during the first twenty-five years than that of the other parts of the State, and much *greater* during the last two periods of twenty-five years each, showing a tendency to centralization in Boston.

The number of paupers in Massachusetts is large; 15,261 were supported by the State in 1846; net amount expended in their support, \$301,707 08, the State supplying \$33,852 of it. In all her precision and system we regret that Massachusetts excludes in her statistics all reference to her black population. Can this be designedly? Surely this class of population is sufficiently large there to attract especial notice. Why is there, then, not a single syllable in all of her documents relative to them? This is not so in slave States. We are not content here without knowledge of the condition, prospects, and improvement of the blacks. Does not Massachusetts owe it to her sister States to show the results of her benevolent systems upon those who were formerly her slaves, and whom, as she tells us, she has been endeavoring to improve? *Let us know their condition now, and their advances. Let us see the results of your experiment. You are not silent in meddling with our affairs—excuse the want of courtesy betrayed in thus intermeddling in yours. We want facts.*

Pass we now under review some of the volumes of Massachusetts State Documents.

1. *Statistics of her Industry*, published by the Secretary, 1845. These are not regarded complete by that officer, from the indisposition of manufacturers, &c., to give full information of their affairs.

PRODUCTS OF MASSACHUSETTS, 1845.

Articles.	Value.	Capital invested.	Hands empl.
Anchors, Chain Cables, &c.	\$538,966.	\$ 377,685.	422
Axes, Hatchets, and other edge tools.	94,441.	48,225.	94
Beef, &c., slaughtered.	225,918. ....	.....	..
Beeswax.	981. ....	.....	..
Berries.	10,842. ....	.....	..
Blacking.	10,422. ....	.....	35
Bleaching or Coloring.	2,166,000.	200,500.	211
Blocks and Pumps.	127,249. ....	.....	204
Boats.	82,943. ....	.....	164
Boots and Shoes.	14,799,140. ....	.....	45,877
Boxes of all kinds.	215,105. ....	.....	235
Brass articles.	331,890.	167,600.	145
Bricks.	612,832. ....	.....	1,407
Britannia Ware.	102,550.	49,350.	93
Broom Seed and Brush.	86,111. ....	.....	..
Brooms.	200,814. ....	.....	313
Brushes.	153,900.	68,875.	220
Butter.	1,116,709. ....	.....	..
Buttons, metal.	56,080.	51,500.	60
Butts or Hinges.	25,390.	3,500.	49
Calico.	4,779,817.	1,401,500.	2,053
Candles Sperm, and Oil.	3,613,796.	2,451,917.	306
Candles Tallow, and Soap.	836,156.	405,872.	343
Cannon.	82,000.	120,000.	48
Cards.	323,845.	171,500.	147

Articles.	Value.	Capital invested.	Hands empl.
Carpeting	\$ 834,322	\$ 488,000	1,034
Cars, Railroad carriages, & other vehicles	1,343,576	553,434	1,881
Chairs and Cabinet Ware	1,476,679	477,374	2,594
Cheese	398,174	.....	.....
Chemical Preparations	331,965	251,700	113
Chocolate	81,672	47,500	27
Clocks	54,975	10,350	40
Coal, Mineral and Iron Ore	21,669	.....	78
Combs	198,965	73,100	340
Cooperage	269,935	.....	487
Copper	610,950	329,000	197
Cordage	906,321	543,930	647
Cotton Goods of all kinds	12,193,449	17,739,000	20,710
Cutlery	148,175	68,725	197
Dyeing	98,700	.....	114
Earthen and Stone Ware	52,025	15,500	72
Engines, Fire	37,800	.....	42
Engines and Boilers, Steam	208,546	127,000	221
Firearms	260,819	789,848	357
Fishery, Mackerel and Cod	1,484,137	1,238,640	7,866
Fishery, Whale	10,371,167	11,805,910	11,378
Flax	665	.....	.....
Flour and other Grain	174,805	44,550	30
Fringe and Tassels	54,300	11,700	106
Fruit	744,540	.....	.....
Gins, Cotton	45,444	75,000	48
Glass	758,300	700,200	630
Glue	387,575	283,675	93
Grain	2,228,229	.....	.....
Hats and Caps	734,942	213,793	1,003
Hay	5,214,357	.....	.....
Hollow Ware and Castings, other than Pig Iron	1,280,141	713,270	1,267
Honey	13,206	.....	.....
Hops	32,251	.....	.....
Hosiery and Yarn	94,892	42,500	238
Instruments, Mathematical, &c.	54,050	.....	68
Iron, Pig	148,761	155,000	235
Iron Railing, Fences and Safes	129,300	53,000	87
Jewelry, includ. Chronometers, Watches, Gold and Silver Ware	305,623	126,225	293
Lasts	80,145	.....	84
Latches and Door Handles	3,200	750	10
Lead Pipe, and Lead Manufactures	90,880	72,700	50
Lead, White, and Paints	356,200	253,500	106
Leather	3,836,657	1,900,545	2,043
Lime	43,629	.....	80
Linen Thread	145,000	79,000	192
Linseed Oil	181,100	77,000	34
Locks	60,079	23,009	75
Lumber and Shingles	921,106	.....	2,506
Machinery	2,022,648	1,103,850	2,421
Maple Sugar	41,443	.....	.....
Marble	220,004	.....	312
Milk	304,917	.....	.....
Millet	8,476	.....	.....
Musical Instruments	548,625	293,100	427
Oil, Lard	219,990	91,000	37
Oil (see Candles and Fishery) .....	.....	.....	.....
Paper	1,750,273	1,144,537	1,369
Pens, Steel	15,000	5,000	12
Plows and other Agricultural Tools	121,691	58,575	158
Potatoes	1,309,030	.....	.....
Poultry and Eggs	25,891	.....	.....

464 PRODUCTIVE ENERGIES AND SPIRIT OF MASSACHUSETTS.

Articles.	Value.	Capital invested.	Hands empl.
Powder	\$ 165,500.....	\$ 120,000.....	49
Rolled and Slit Iron, and Nail	2,478,300.....	1,906,400.....	1,729
Saddles, Harnesses and Trunks	422,794.....	144,540.....	648
Salt	79,980.....	399,285.....	584
Sashes, Blinds and Doors	180,181.....	.....	215
Scythes	113,935.....	96,590.....	171
Seeds	4,721.....	.....	..
Shoe Pegs	18,206.....	.....	..
Shovels, Spades, Forks and Hoes.....	275,212.....	123,950.....	259
Silk, Raw	952.....	.....	..
Silk, Sewing	150,477.....	38,900.....	156
Snuff, Tobacco and Cigars	324,639.....	.....	572
Soap (see Candles).....	.....	.....	..
Starch	119,940.....	37,500.....	39
Stone, Building	1,065,599.....	.....	1,849
Straw Bonnets and Hats, Palm-leaf Hats and Braid	1,649,496.....	.....	13,311
Sugar, Refined	940,000.....	410,000.....	106
Tacks and Brads	253,687.....	123,225.....	269
Teazles	3,308.....	.....	..
Tin Ware	793,624.....	343,710.....	719
Tobacco raised	16,686.....	.....	..
Tools, Mechanics'	161,899.....	.....	256
Upholstery	354,261.....	124,700.....	275
Vegetables, other than Potatoes.....	515,082.....	.....	..
Vessels	1,172,147.....	.....	1,017
Whips	111,947.....	.....	526
Wood (Fire), Bark and Charcoal.....	1,088,656.....	.....	2,925
Wooden Ware	416,366.....	.....	806
Wool	365,136.....	.....	..
Woolen Goods of all kinds	8,877,478.....	5,604,002.....	7,372
Worsted Goods	654,566.....	514,000.....	846
Stoves, Bread, Beer, Books and Stationery Balances, Matches, Lamps, Pickles, Paper Hangings, Types, Umbrellas, &c.	4,758,384.....	1,587,760.....	3,232
Total	114,478,443.....	59,145,767.....	152,766

2. *Railroad Reports.* There are annual volumes published. From the one published in 1847 for 1846, we note twenty-eight corporations. The fatal accidents on all during the year are nine—seven not fatal; others supposed not given. Among the information given is that relative to stock of companies, cost of roads and buildings, characteristics of roads, results of the year, expenditures, income, motive power, dividends, &c. All of these evidence wide prosperity, and deserve to be studied in every part of the Union. In 1818 there was not a single mile of railway in New England, save a short wooden track. The capital invested in railroads by Massachusetts men in 1846, was estimated at \$37,000,000; it must be now fast verging upon \$50,000,000.

3. *State Lunatic Asylum.* Six hundred and thirty-seven insane persons have had the privilege of the institution during 1846.

OCCUPATIONS OF THOSE ADMITTED.

	1846.	Previously.
Farmers admitted	30.....	272
Merchants	12.....	98
Laborers	31.....	178
Shoemakers	2.....	89
Seamen	13.....	80
Carpenters	8.....	57
Manufacturers	1.....	35

		1846.	Previously.
Teachers	66	3	31
Students	68	5	31
Blacksmiths	66	2	22
Printers	64	1	20
Tailors	66	1	14
Clergymen	66	2	12
Lawyers	66	0	6
Physicians	66	0	6
Females not accustomed to labor		0	177
Females accustomed to sedentary employment		4	240
Females accustomed to active employment		66	432
Many not classed, particularly females.			

4. *Common Schools.*—The Report of the Secretary of the Board, a considerable volume, contains the particulars in relation to all the school districts, &c. From the concluding pages we extract a passage :

"And the calamities which spring from ignorance, and a neglect of the social condition of the masses of the people, are no exception to this rule. Republics, one after another—a splendid yet mournful train—have emerged into being; they have risen to greatness, and surrounding nations have sought protection beneath the shelter of their power; but they have perished through a want of intelligence and virtue in the masses of the people. They have been delivered over to anarchy and thence to despotism; and because they would not obey their own laws, they have been held in bondage by the laws of tyrants. One after another, they have been blotted from the page of existence, and the descendants of a renowned and noble ancestry have been made bond-men and bond-women;—they have been dishonored and trampled upon, on the very soil still choral with the brave deeds of their forefathers. Has a sufficient number of these victim-nations been sacrificed, or must ours be added to the tragic list? If men had been wise, these sacrifices might have been mitigated, or brought to an end, centuries ago. If men are wise, they may be brought to an end now. But if men will not be wise, these mournful catastrophes must be repeated again and again, for centuries to come. Doubtless, at some time, they will come to an end. When the accumulation of evils shall be so enormous and overwhelming, that humanity can no longer endure them, the adequate efforts for their termination will be made. The question for us is, has not the fullness of time now come? Are not the sufferings of past ages, are not the cries of expiring nations, whose echoes have not yet died away, a summons sufficiently loud to reach our ears, and to rouse us to apply a remedy for the present, an antidote for the future? We shall answer these questions, by the way in which we educate the rising generation. If we do not prepare children to become good citizens;—if we do not develop their capacities, if we do not enrich their minds with knowledge, imbue their hearts with the love of truth and duty, and a reverence for all things sacred and holy, then our republic must go down to destruction, as others have gone before it; and mankind must sweep through another vast cycle of sin and suffering, before the dawn of a better era can arise upon the world. It is for our government, and for that public opinion, which, in a republic, governs the government, to choose between these alternatives of weal or wo."

The volume of extracts from School Reports for 1844 contains 340 pages. That some idea may be formed of the immense labor expended upon it, the following extract is introduced :

On the 1st of May last, therefore, I found myself in possession of the School Committees' Reports for two years. Each set of these was more voluminous than for any former year. Together, they were equal to fifty-five hundred closely written letter-paper pages. Every one of these I have carefully read. Taken as a whole, they are documents of extraordinary interest and value. From them, the present volume of the Abstracts, more select than any of its predecessors, has been compiled. I earnestly recommend its perusal to every friend of popular education in Massachusetts—especially to all school committee men and teachers.

5. *Registration of Births, Marriages, and Deaths.*—These are volumes published annually. We have four of them before us—the one of 1842 being the first published under the State law. These cannot be too highly commended when properly kept. They present at all times an index to the actual condition of a people. The system of Massachusetts is deserving of universal imitation in other States, and we hope to see something of the kind before long.

The volume for 1845 contains an admirable letter to the Secretary, by that able statistician, Lemuel Shattuck, Esq., of Boston. We make no apologies for presenting to our readers some of the striking results which it unfolds :

PRODUCTIVE CLASSES.

From this statement it appears that, while the whole United States had 52.35 per cent. of the population of the productive class, between 15 and 60, Massachusetts had 59.65 per cent. and England 56.70; showing this State to be better situated, in this respect, than either. In the aged class it appears, however, that England had 7.20 per cent. while this State had but 6.74—a result in favor of the longevity of that country. Some counties compare better than others or the whole State. Boston has 64.65 per cent.—the greatest proportion of the productive class; and only 2.93 per cent.—the least of the aged.

PROPORTION OF BIRTHS, MARRIAGES, AND DEATHS, IN EUROPE.

STATES.	Period of Observation.	Annual number of Marriages, Births, and Deaths, to 100 persons living, or per cent.			Number of persons living to one annual Marriage, Birth, and Death.		
		Marriages. per cent.	Births. per cent.	Deaths. per cent.	Marriages. One in	Births. One in	Deaths. One in
England	1839-1842	.770	3.200	2.209	130	31	45
France	1840-1842	.825	2.837	2.397	121	35	42
Austria	1839-1841	.807	3.874	2.995	124	26	33
Prussia	1839-1841	.887	3.767	2.658	113	27	38
Russia	1842	1.013	4.284	3.590	99	23	28

MARRIAGES IN MASSACHUSETTS 1845—BELGIUM 1841.

AGE.	Number of persons married in				To 10,000 married, there were in			
	Massachusetts.		Belgium.		Massachusetts.		Belgium.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Under 20....	53	690	757	2,685	198	2,583	312	1,105
20 to 25....	1,308	1,422	4,530	6,966	4,897	5,324	1,864	2,867
25 to 30....	952	446	9,420	8,067	3,564	1,670	3,877	3,320
30 to 35....	247	79	5,497	3,841	925	296	2,262	1,581
35 to 40....	81	17	2,488	1,719	303	64	1,024	707
40 to 45....	17	14	1,000	653	64	52	412	269
45 to 50....	8	2	340	225	30	7	140	93
50 to 55....	5	1	137	76	19	4	56	31
55 to 60....	..	..	56	27	..	..	23	11
Over 60....	..	..	72	38	..	..	30	16
	2,671	2,671	24,297	24,297	10,000	10,000	10,000	10,000

The number of births in Massachusetts in 1845, was 15,564; being 7,793 males, and 7,594 females.

In 1844 there was 1 case of twin births to	123 cases of birth.
" 1845 " 1 " " to	129 "
" 1844 " 1 " triplets to	7,261 "
" 1845 " 1 " " to	15,444 "
" 1844 " 1 " quadruplets to	15,523 "
" 1845 " no case of	"

"The births registered in England are in proportion to the population one-seventh part more numerous than in France, and one-seventh part less than in Prussia. To 3,525 inhabitants, 100 births are annually registered in France, 113 in England, 133 in Prussia, 136 in Austria, 151 in Russia. The small number of births in France is not accounted for by any difference in the proportion of the persons married, who are, in fact, more numerous in France than in any other country from which I have been able to procure returns. It appears that 100 French wives had 14 children, 100 Prussian wives 21 children, yearly; or, in other terms, 717 wives bore annually 100 children in France, 152 children in Prussia. If the births are divided by the annual marriages that took place seven years before, there were 3.33 births (in wedlock) to a marriage in France—4.05 to a marriage in Prussia, and 4.34 to a marriage in Austria; 4.26 to a marriage in England, and if a correction be made for first marriages, 4.79 to every two persons married. The total annual births in England, divided by the persons married seven years before, give on an average 5.12 children to every two persons married; and as many illegitimate children are the offspring of married persons before, during, or after marriage, the number of children to every two persons married in England must be between 4.79 and 5.12, or little short of five, about three of which attain the age of marriage to replace the two parents and those who have no offspring; the surplus swelling the number of the existing inhabitants of the island, or flowing in of emigration."

TABLE OF LONGEVITY.

Age surviving.	Number surviving each specified age, calculated from the deaths.						
	In Massachusetts.				In Preston, England.		
	1842.	1843.	1844.	1845.	Gentry.	Tradesmen.	Operatives.
At Birth.	100.	100.	100.	100.	100.	100.	100.
1 year	88.43	86.51	83.74	82.38	90.8	79.6	68.2
2 years	81.76	79.42	76.69	74.67	87.6	73.5	57.5
5 "	72.64	70.71	69.46	65.26	82.4	61.8	44.6
10 "	67.62	64.99	65.13	61.04	81.1	56.6	38.8
20 "	60.56	58.63	58.21	53.98	76.3	51.9	31.5
30 "	48.34	47.32	47.30	42.12	72.3	45.6	25.2
40 "	40.40	39.01	38.78	33.73	63.4	37.5	20.4
50 "	32.87	32.28	32.56	27.67	56	28.1	15.6
60 "	26.08	26.02	26.92	21.71	45.1	20.5	11.2
70 "	18.35	18.29	19.09	15.26	25.4	13.3	6.1
80 "	9.06	8.45	9.32	6.86	8	4.5	2.1
90 "	2.03	1.64	1.83	1.35	1.3	.8	.2
100 " ....	.07	.08	.05	.07	..	..	..

It appears from this table, that in Massachusetts 60.56 per cent. in 1842 survived the age of 20, and only 53.98 in 1845; while in Preston 76.3 per cent. of the "gentry," 51.6 per cent. of the "tradesmen,"

and only 31.5 per cent. of the "operatives," survived the same age. In Massachusetts, 26.08 in 1842, and only 21.71 in 1845, survived the age of 60, while in Preston 45.1 per cent. of the gentry, 20.5 per cent. of the tradesmen, and only 11.2 per cent. of the laborers survived in the age. This shows that the people of Massachusetts do not enjoy so good health as the better classes in England, though better health than the laboring classes. The influence of circumstances and occupation on health and longevity, is strikingly illustrated by the statement concerning Preston. It appears that while 72.3 per cent. of the gentry survived 30 years, only 25.2 of the operatives, or laborers, survived the same age.

The following extracts are curious and interesting. They furnish the most powerful reasons for the preservation of life statistics, and the study of this important branch of knowledge.

"Man comes into existence a helpless being; arrives at maturity by the aid of others; exists in a state of maturity an indefinite period, and then decays and dies; 'the dust returns to the earth as it was.' This is the common lot of all. Life may extend to 70, 80, 90, or even 100 years: and it may terminate in a year, a month, or even in an hour. We know that we all must die; but the time of our death we do not know. It may come comparatively soon; it may not. We believe, however, that the time of our death, though unknown, is in some respects within our own control. We believe that disease and death come not from a mysterious, unconditional Providence, but are the result of the condition of our bodies, and the influences that are brought to bear upon them. Many of these influences we bring around us by our own voluntary choice. One person takes proper food, at proper times and in proper quantities; another indulges his appetite, and takes unwholesome food, at irregular intervals, and in injurious quantities. One person clothes himself so as to maintain a uniform temperature of the body at all times; another guards not against the changes in the temperature of the seasons, but allows himself to be alternately heated and chilled. One man selects a place of residence where the air he breathes is pure and invigorating; another, where the noxious impurities of the air carry disease and death to his vitals. One person keeps his skin in a healthy state by frequent bathing; another permits it to be coated over with impurities. One chooses an occupation which gives sufficient exercise, physical and mental, to keep all the energies of his body vigorous; another, one that requires too much labor for his physical nature, or has in itself unhealthy influences, or, in his occupation over-exerts himself so as to impair his physical and mental capacity. One man exposes himself to the contagion of small-pox, knowing, at the same time, that it is dangerous, takes the disease and dies; another vaccinates himself, and thus protects and saves his life. One man ventures upon the ocean without sufficient knowledge to manage his craft, and thus exposes himself to accidental death; another is cautious, and ventures no farther than safety permits. The act of the one in each case is favorable, and prolongs life; the act of another is unfavorable, and abridges it. And will not every one say that all these acts and influences for good or for evil, are more or less within the control of man?—that life may be saved and pro-

longed, and that the time of our death may, in some sense, be postponed? Numerous illustrations of this truth present themselves within the circle of our own knowledge. The late Rev. Dr. Ripley of Concord, when settled, in 1778, had a feeble constitution; and one man voted against him because he thought it useless to settle a man whose probabilities of living were so small. He, however, by great care and attention to his health, acquired a pretty good constitution, and survived his 90th year. He probably added 50 years to a life, which another man, under similar circumstances, would not have enjoyed.

"The tendency of our people is to become a manufacturing people; and manufactures have been so far investigated, that the cost of every article—material, transportation, labor, wages, board, &c.—is clearly known. But what amount of life is sacrificed thereby we know not. We do not know, though we ought to know, whether there exists, or whether there is any tendency to such a condition in any of our cities and towns, as would justify the remark of Mr. Chadwick, before quoted, making them 'characteristic of those crowded, filthy, badly-administered districts in England, where the average duration of life is short, the proportion of the young very great, and the adult generation transient.'

"The average age at death, as has been already said, is not to be taken as an exact index of comparison for the health of a place, unless we have the number, age, and condition of the living. It is, however, an interesting fact to be known, and we present, in the subjoined table, several calculations made from such data as are in our possession.

Period of Observation.	Number of years.	Place and Circumstances.	Number of deaths.	Average age at death.
1779 to 1842.....	63.....	Concord.....	1,600.....	38.08
1812 to 1845.....	33.....	Plympton.....	494.....	41.00
1805 to 1836.....	32.....	Amherst, N. H.....	815.....	32.00
1817 to 1843.....	27.....	Dorchester, Mass.....	1,767.....	32.20
1842.....	1.....	Massachusetts Returns.....	6,986.....	34.77
1843.....	1.....	".....	7,798.....	33.82
1844.....	1.....	".....	7,689.....	33.74
1845.....	1.....	".....	8,388.....	30.26
1811 to 1820.....	10.....	City of Boston.....	8,020.....	27.25
1821 to 1830.....	10.....	".....	10,731.....	25.88
1831 to 1840.....	10.....	".....	16,314.....	22.72
1841.....	1.....	England.....	335,106.....	29.46
1841.....	1.....	Ireland.....	.....	28.00
1841.....	1.....	London.....	.....	27.00
1841.....	1.....	Liverpool.....	.....	20.00
1814 to 1833.....	20.....	Geneva, Switzerland, males.....	5,219.....	38.44
1814 to 1833.....	20.....	"..... females.....	5,688.....	42.68
1814 to 1833.....	20.....	"..... both.....	10,907.....	40.67

"This statement affords another striking illustration of the influence of locality on longevity. Estimating, by the above average age at death, the value of life to be 100 per cent. enjoyed by the people of Plympton, then the people of Boston would, according to the age 1831-1840, enjoy but 55.41 per cent.; or, in another view, the people of Boston, on the average, live a less number of years by 44.59 per cent. than do the people of Plympton!

"But while we have all these surveys and maps, pointing out the boundaries of our counties and towns, the localities of our mineral

wealth, the best lands for farming and the production of domestic animals, and the existence of noxious and innoxious wild animals, we may ask where is the sanatory map which points out the healthy and unhealthy localities in the State, which will reveal to our people where and how human life can best be sustained and longest continued, and where and how human energy and productive power can be best brought to bear upon the culture and development of the sources of wealth in the State? Have we not said by such legislation that our cattle and our hogs are of more value than the lives of ourselves and our children? Have we not extended to the brute, whose worth is measured by dollars and cents, a species of legislation which has been withheld from man, who is of immeasurable value? When compared to investigations into the physical condition of man, all other investigations dwindle into insignificance.

"The population of Massachusetts may now be estimated at 800,000. From the returns of deaths received, I have estimated the whole number of deaths in the State last year to have been 14,000, which is nearly 1 in 57, or 1.75 per cent. of the population. Of these 14,000, there died at least 6,000 children and youth under 15 years of age. Estimating the average ages of the whole of these in the same proportion as those actually known, it will give for each about 4 years, or 24,000 years of life for all. This, at \$50 a year, amounts to \$1,200,000 as the cost of their maintenance. And all this sum was lost to the State last year by premature deaths, before any return could be made for it. Can any one doubt that half, at least, might have been saved by proper knowledge and care?

"The proportionate number of deaths among the young has been increasing for several years past in this country, as our investigations prove; and we see no reason to believe it will be less, until more knowledge is diffused in regard to the laws of life and the liability to death, under different circumstances. This immense loss of the productive power of the State, may be considered as an annual tax, which the people must pay every year, until they find out and use the means of prevention.

"It has been said that the strength and dignity of a nation consist not in its lands, its houses, its wealth—but in its people. And I have already stated, that that people is most prosperous which contains the greatest proportionate number of the productive age. In the above calculation, we have not taken into account the loss sustained by the death of those belonging to this age. This would greatly swell the amount of loss. We have stated that by care and attention the late Dr. Ripley probably added 50 years to his life. We are now considering time as money, labor as money, *life as money*, and not the real, moral value of that good man's services. Estimating, then, this time to be worth \$1 per day, or \$300 per annum, the 50 years of life were worth \$15,000, and that sum was saved by the prolongation of his life. The deaths in this State last year, as we have estimated, were 14,000. Of these 5,000 probably died between 15 and 60 years of age. Let us suppose that by proper knowledge of the laws of health, and a proper care in obeying these laws, 5 years might, on the average, have been added to each of their lives—and this seems not an extravagant supposition—then we should have

saved, instead of losing, as we have done, 25,000 years of life, which, estimated to be worth, in this adult age, only \$150 a year, would have produced \$3,750,000! And this loss must be annual!

"There is still another view of this great subject. William Farr, Esq., one of the ablest writers on Vital Statistics of the age, stated in McCulloch's Statistical Account of the British Empire, that 'when 1 person in 100 dies annually, 2 are constantly sick; although this exact relation is, perhaps, not preserved in infancy and old age, or where the rate of mortality deviates from the standard, it may be safely assumed as a near approximation to the truth.' This principle may be more simply expressed thus: the proportion of persons constantly sick in a population, is double the annual proportion per cent., which the deaths bear to the living in that population. According to the estimate already given, the proportion of deaths to the population in Massachusetts was 1 in 57, or 1.75 per cent. Double this per centage, and we have 3.5 as the proportion per cent.; and this proportion of 800,000 is 28,000, the actual number constantly sick in this State.

"Sickness occasions a twofold loss; one for the time and labor of the sick, and the other for the nursing, medical attendance, medicine, and other expenses, which they require. The first may be estimated at \$50, and the second at \$150, or \$200 per annum for both, which multiplied by the 28,000, give a total annual loss by sickness of \$5,600,000! It is supposed that half of this sickness is preventable, and that half of this enormous sum might be saved if the laws of health were properly understood and obeyed.

"We might save then—

By diminishing the mortality of infancy and childhood.....	\$ 600,000
By prolonging the lives of adults	3,750,000
By preserving the general health and diminishing sickness	2,800,000

Making, according to this view, an annual total saving of.....\$7,150,000

"This amounts in ten years to \$71,500,000 or about *one-quarter of all the property of the Commonwealth*, according to the valuation of 1840!"

6. The Banking System of Massachusetts is on the most enlarged scale. It would seem as if the people of that Commonwealth had the most unlimited confidence in this species of investment. The Legislature requires an annual statement of the condition of all these banks, and we have before us several of these annual publications. The number of Savings Institutions in 1846 was thirty-eight—their condition, &c., as follows:*

The number of depositors in all, 38 banks, was.....	62,893
Amount deposited in all, 38 banks.....	\$10,680,933 10
Public Funds.....	1,890,525 93
Loans on Public Funds.....	19,500 00
Bank Stock.....	1,909,620 72
Loans on Bank Stock.....	149,256 50
Deposits in Banks bearing interest.....	94,520 61

* We are indebted for this summary to a handsome volume, the Massachusetts State Record, 1847, compiled by Nahum Capen, Esq., who kindly furnished us a copy. It is made from the returns to the Secretary of State. We are also indebted to Mr. Capen for the summary of insurance companies, &c.

472 PRODUCTIVE ENERGIES AND SPIRIT OF MASSACHUSETTS.

Railroad Stock.....	14,800 00
Loans on Railroad Stock.....	232 538 75
Invested in Real Estate.....	90,884 22
Loans in Mortgage of Real Estate.....	3,757,262 80
Loans to County or Town.....	818,041 96
Loans on Personal Security.....	1,930,072 88
Cash on hand.....	150,728 26
Rate and amount of ordinary dividend for last year, 4½ per ct.	345,443 10
Average annual per ct. of dividends of last five years, 5½ per ct.	
Annual expenses of Institutions.....	29,306 69

The condition of all other banks for 1846 appears in the annexed table.

BANKING SYSTEM OF MASSACHUSETTS.

DUE FROM THE BANKS.	25 Banks in Boston.	80 Banks out of Bos.	Total—105 Banks.
Capital stock paid in	\$18,180,000 00	\$12,980,000 00	\$31,160,000 00
Bills in circulation of five dollars and upward	5,677,668 00	6,651,717 00	12,329,385 00
Bills in circulation less than five dollars	696,018 00	1,566,511 50	2,262,529 50
Net Profits on hand.....	1,474,694 72	1,029,441 45	2,504,136 17
Balances due to other banks....	5,072,005 48	213,010 19	5,285,015 67
Cash deposited, including all sums whatsoever due from the banks not bearing interest, its bills in circulation, profits and balances due to other banks excepted.....	6,806,374 51	2,653,001 41	9,459,375 92
Cash deposited bearing interest .	740,237 18	161,034 80	901,271 98
Total amount due from the banks	38,646,997 89	25,254,716 35	63,901,714 24
RESOURCES OF THE BANKS.			
Gold, silver, and other coined metals in their banking-houses	2,437,072 39	617,683 29	3,054,655 68
Real estate	719,582 87	378,418 10	1,098,000 97
Bills of other banks incorporated in this State	2,394,802 78	240,256 38	2,635,059 16
Bills of other banks incorporated elsewhere	176,236 00	43,459 55	219,695 55
Balances due from other banks..	3,104,657 23	2,463,431 59	5,568,088 82
Amount of all debts due, including notes, bills of exchange, and all stocks and funded debts of every description, excepting the balances due from other banks	29,814,646 62	21,511,467 44	51,326,114 06
Total amount of the resources of the banks	38,646,997 89	25,254,716 35	63,901,714 24
Rate, amount and date of dividends since the last annual returns	1,163,500 00	692,790 00	1,856,290 00
Amount of reserved profits at the time of declaring the last dividend	1,151,642 10	655,561 65	1,807,203 75
Amount of debts due to each bank secured by pledge of its stock.	396,075 85	345,460 69	741,536 54
Amount of debts due and unpaid, and considered doubtful	74,266 76	188,176 39	262,443 15

7. Insurance Returns.—We have three of these annual publications.

BOSTON INSURANCE COMPANIES, DECEMBER 1, 1846.

	Capital.	At risk—Marine.	At risk—Fire.	Fire losses last year.	Marine losses last year.
American.....	\$300,000 00	\$4,683,528 00	\$3,086,651 00	\$13,093 46	\$113,905 79
Boston	300,000 00	2,180,311 00	....	....	73,746 88
Boylston Fire & Marine	300,000 00	2,189,792 00	3,210,463 00	3,334 11	86,331 57
Firemen's	300,000 00	....	10,824,495 00	48,193 65	....
Franklin	300,000 00	1,672,675 00	3,711,883 00	11,897 64	46,168 51
Hope	200,000 00	492,265 00	....	....	3,895 58
Manufacturers' ..	400,000 00	1,954,411 00	12,391,773 00	51,854 00	58,417 12
Merc. Marine..	300,000 00	1,639,071 00	....	....	61,608 78
Merchants'	500,000 00	7,247,702 00	13,856,305 00	38,883 26	142,296 72
National	500,000 00	4,239,462 00	7,867,453 00	22,692 59	51,822 36
Neptune	200,000 00	6,933,110 00	4,331,882 00	7,407 41	328,548 40
Suffolk	225,000 00	1,022,658 00	542,815 00	972 37	39,465 77
Tremont	200,000 00	4,734,337 00	1,338,786 00	2,107 84	173,138 75
United States..	200,000 00	1,128,866 00	372,850 00	180 00	14,288 82
Warren	150,000 00	1,992,270 00	....	....	102,322 73
Washington...	200,000 00	2,365,778 00	....	....	78,320 32
	4,575,000 00	44,476,236 00	61,535,356 00	200,616 33	1,374,278 10

COMPANIES OUT OF BOSTON.

	Capital.	At risk—Marine.	At risk—Fire.	Marine losses.
Lynn Mechanics' Fire and Marine.....	\$50,000 00..	\$30,700 00..	\$14,450 00..	\$600 28
Marblehead Marine..	100,000 00..	56,550 00..	....	6,285 93
Essex, Salem.....	100,000 00..	311,770 00..	45,450 00..	24,559 91
Oriental "	200,000 00..	342,305 00..	....	1,681 41
Fairhaven	100,000 00..	....	....	228 07
New Bedford Com'l...	150,000 00..	2,334,153 00..	....	43,825 00
" " Mechanics'	100,000 00..	14,000 00..	....	8,868 61
" " Pacific....	100,000 00..	....	....	1,490 61
" " Whaling..	100,000 00..	613,637 50..	....	2,269 82
Plymouth, Old Colony	50,000 00..	139,245 00..	18,290 00..	5,332 67
Provincetown, Union.	75,000 00..	126,161 00..	....	4,611 03
Nantucket, Commerce'l	75,000 00..	285,730 50..	....	5,957 81
	\$1,200,000 00..	\$4,264,252 00..	\$78,190 00.	\$105,711 15

8. The *Agricultural Reports* we have already particularly referred to in previous pages of this number. We have several of them, which embrace a variety of the most interesting information.

9. We might properly conclude with the *Manufactures of Massachusetts*. None of the Reports are complete enough in this particular. It would be a source of great satisfaction to know the annual average profits now and hitherto in that species of industry throughout the State. We should learn the uses or abuses of the protective system, and determine how far it is necessary among us. We had the satisfaction of visiting Lowell a short time since, the most important manufacturing town in New England, and which consumes about one-sixth of all the cotton manufactured in this country. The history of this remarkable city, prepared by Mr. Miles, is worthy of study. It has grown in an amazing ratio. Scarcely more than 20 years have passed since the manufacturing system was opened there on a scale of any promise. We know its present stature. Mr. Miles states the semi-annual dividends of the companies to be frequently 10 per cent. for six months—or thus doubling the capital in five

years! It may be gathered from this what a mint of wealth exists here, and the fortunes of Massachusetts manufacturers. Hence the secret of Boston's greatness.

STATISTICS OF LOWELL.*

Corporations.	Incorporated.	Capital Stock.	Spindles.	Looms.	Fem. empl.	Males empl.	Kind of Goods made.
Merrimack Manufac. Co. . .	1822	\$2,000,000	41,600	1,300	1,175	600	Prints & Sheetings Nos. 22 to 39.
Hamilton Manufac. Co. . .	1825	1,200,000	25,956	736	750	270	Prints, Flannels, & Sheet., 14 to 40
Appleton Company	1828	600,000	11,778	400	340	65	Sheetings & Shirtings, No. 14.
Lowell Manufacturing Co.	1828	600,000	3,400 Wool 7,143 Cot.	241 Cotton, 50 Power Carpet, 30 Hand Carpet, 45 Broadcloth, 375 Cassimer.	550	225	Carpets, Rugs & Cotton Cloths.
Middlesex Manufac. Co. . .	1830	750,000	13,000	404	950	550	Broadcloth and Cassimer.
Suffolk Manufac. Co.	1830	600,000	13,936	479	400	90	Drillings, 14.
Tremont Mills	1830	600,000	12,960	479	480	100	Sheetings, No. 14.
Lawrence Manufac. Co. . .	1830	1,500,000	44,032	1,950	1,300	200	Shirtings, No. 14.
Lowell Bleachery	1832	140,000	----	----	20	230	Printing Cloths.
Boott Cotton Mills	1835	1,200,000	34,374	965	870	160	Sheetings & Shirtings, 14 to 30.
Massachusetts Cotton Mills	1839	1,203,000	29,152	919	750	160	1,700,000 lbs. bleached per an.
Prescott Manufactur. Co. .	1844	600,000	16,128	548	450	90	Drillings, No. 14.
Lowell Machine Shop . . .	1845	500,000	----	----	--	600	Shirtings, No. 40.
Total	----	11,490,000	253,456	7,756	7,915	3,340	Printing Cloth, 40.
							Sheeting 13.
							Shirting, 14.
							Drillings, 14.
							Sheetings & Shirtings, 12 & 14.
							3,000 tons wro't & cast iron per an.

Average wages of females, clear of board, per week	\$2 00
" " males, " " per day	80
Medium produce of a loom, No. 14 yarn, yards per day	45
" " " " No. 30 " " " "	33
Average per spindle, yards per day	11

The Lowell Machine-shop, included among the above mills, can furnish machinery complete for a mill of 6,000 spindles in three months, and a mill can be built in the same time.

An important undertaking, eventually to redound to the interest and wealth of the city, is the building of the *new canal*. It is destined to give to most of the mills on the lower level a more regular supply of water, and consequently benefit those on the upper level. It is to be of an average width of 100 feet, and a depth of 15 feet. It will require in its construction a rock excavation of 150,000 yards, an earth excavation of 110,000 yards, and a mass of masonry of 50,000 yards; the whole estimated at an expense of \$500,000.

In the course of a few months, two new cotton mills will be in operation. The one built by the Merrimack Company to contain 23,424 spindles, and 640 looms. The other, built by the Hamilton Company, will commence with 10,368 spindles, and 260 looms—but is of sufficient capacity to contain nearly 20,000 spindles, and 400 looms. The driving power for the latter will be a steam engine of 160 horse power, which is being put in.

Other manufactures are produced in the city than those specified above, of a value of \$800,000, employing a capital of \$310,750, and about 1,000 hands.

Total manufacturing capital of Lowell, \$11,490,000. Total females employed, 7,915; total males, 3,340. Consumption in factories, about 50,000 tons of coal, 5,000 cords of wood, 100,000 gallons of oil, 1,000,000 pounds of starch, 765 barrels of flour. Population of Lowell, 1828, 3,532; 1846, 28,841.

* For these facts and particulars we are indebted to the History of Lowell by Mr. Miles, the State Record of Mr. Capen, and the admirable sheet published by Joel Taylor, Esq., of Lowell, who issues annually from the press one of these valuable papers.

ART. IV.—NEW FIELDS FOR AMERICAN COMMERCE.

RUSSIAN-AMERICA—SANDWICH ISLANDS—JAPAN.

WE have classed these novel and interesting regions together, not that there is any similarity, but as coming in the order of countries, which it is our intention to embrace in a series of articles, under the general head above. With Great Britain we are now contending for the sceptre of the seas; and it behoves us, like her, to watch the mass of the world, and open relations with the uttermost isle. There is a glorious field before us, and we have nothing to dread from the rivalry of any contemporary nation. The hardy spirit of our enterprise has lost nothing since the days of Burke. But to our subject.

RUSSIAN-AMERICA.

The adventures of the Russians in the northern seas and frozen regions, and ultimate settlements upon the coast of North America, are matters of curious interest, and would afford room for an elaborate and romantic paper, which at some other time we may be induced to give.

In her treaties with the United States and Great Britain, Russia has asserted and maintained a right to the whole division of America, north of $54^{\circ} 40'$ lat. and west of a line drawn from that parallel north, along the highlands, bordering the Pacific ocean to Mount St. Elias, and thence due north to the Arctic ocean.

This territory presents little worthy of note, agriculturally or in any other respect, save for the purposes of hunting and fishing, to which uses it has been principally confined—the climate being cold and inhospitable.

The Russian-American Trading Company have received a charter of the whole region, but they have leased the coasts south-west of 58° to the Hudson Bay Company, at a rent payable in furs. The Company has most of the Indians under jurisdiction, and levies tribute upon them in the shape of skins. It has twenty-six trading establishments south of Bhering's Straits, and its subjects in 1843, were 770 Russians, 1,442 creoles, 11,000 aborigines. There is a governor-general over the whole territories. The furs are shipped to China, Kamschatka, Siberia, and Russia in Europe.

Sitka, or New Archangel, is the capital of Russian-America.

From the late valuable "Travels of Sir George Simpson around the world"* we beg leave to introduce a few passages descriptive of Russian-America, and the life which exists in its midst.

SITKA AND THE FUR TRADE.

In addition to Sitka, which is the principal depot of the Russian-American Company, there is a smaller establishment of the same kind at Alaska, which supplies one post in Bristol Bay, and three posts in Cook's Inlet, all the four being connected with subordinate stations in the interior; and there exists another depot in Norton Sound, which has also its own inland dependencies. Beyond the limits of Russian-America, properly so called, the company has either perma-

nent forts or flying parties in the Aleutian and Kurile Islands, over and above a chain of agencies extending from Ochotsk to Petersburg, for the purpose of transporting goods and engaging servants.

The operations of the company were becoming more extensive than they had previously been. Its exclusive license had been extended for a farther term of twenty years; the direction was about to be remodeled; and generally an improved order of things was in progress.

At the date of my visit, the returns of the trade were pretty nearly as follows: 10,000 fur seals, 1,000 sea otters, 12,000 beaver, 2,500 land otters, — foxes, martens, &c., 20,000 sea horse teeth.

Some twenty or thirty years ago, there was a most wasteful destruction of the fur seal, when young and old, male and female, were indiscriminately knocked on the head. This imprudence, as any one might have expected, proved detrimental in two ways. The race was almost extirpated; and the market was glutted to such a degree, at the rate for some time of two hundred thousand skins a year, that the prices did not even pay the expenses of carriage. The Russians, however, have now adopted nearly the same plan which the Hudson Bay Company pursues in recruiting any of its exhausted districts, killing only a limited number of such males as have attained their full growth, a plan peculiarly applicable to the fur seal, inasmuch as its habits render the system of husbanding the stock as easy and certain as that of destroying it.

THE RUSSIAN-AMERICAN COMPANY.

“In the service of the Russian-American Company, the officers are divided into two classes. The captain of the port, the secretaries, three public and two private, two masters in the navy, the commercial agent, two doctors and the Lutheran clergyman form, at present, the first class, and constantly dine by general invitation with the governor; while the civilian masters of vessels, the accountants, the head engineer and about twenty clerks and storekeepers form the second class, and dine together in a club. The salaries of these officers, independently of such pay as they may have according to their rank in the imperial navy, range between 3,000 and 12,000 roubles a year, the rouble being, as nearly as possible, equal to the franc, while they are, moreover, provided with firewood and candles, with a room for each, and with a servant and a kitchen between two. Generally speaking, the officers are extravagant, those of 5,000 roubles and upward spending nearly the whole, and the others getting into debt as a kind of mortgage on their future promotion.

“For the amount of business done the men, as well as the officers, appear to be unnecessarily numerous, amounting this season to nearly 500, who with their families make about 1,200 souls as the population of the establishment. The servants are kept in good order and appear to be quiet and tractable. They work from five in the morning till seven in the evening, with an interval of about an hour for dinner; as breakfast is seldom eaten among Russians, no time is allowed for that meal. Among the servants are some excellent tradesmen, such as engineers, armorers, tinsmiths, cabinet-makers, jewelers, watch-makers, tailors, cobblers, builders, &c., receiving

generally 350 roubles a year; they have come originally on engagements of seven years; but most of them, by drinking or by indulging in other extravagance, contrive to be so regularly in debt, as to become fixtures for life. On going the round of the tradesmen, the workshop of the engineer gratified me most, not merely because Moore was a man of superior ingenuity, but because he had trained five or six creoles and half-breeds to discharge all the mechanical duties of his business nearly as well as himself. As a proof of the efficiency of this department, the whole of the machinery of a tug of seven-horse power was cast and manufactured here, as well as of two pleasure boats of two-horse power each, one belonging to the governor and the other to Moore. The tug is usefully employed in towing vessels to and from the anchorage; and something of the same kind is much wanted in the Columbia to save the valuable time that is now lost, I mean, of course, above the bar, in the difficult navigation of that stream.

"Many of the servants have Russian wives; but most of the females of the establishment are Aleutian and Indian half-breeds. These native women, naturally no beauties, are begrimed with dirt, while many of them, like their lords and masters, are addicted to drunkenness, which, in their case, leads, as a matter of course, to other vices. The majority of the people look sallow and unhealthy, rather, I conceive, through their intemperate habits, than through the effects of the climate. Cases of the prevailing disease of the coast are here frequent, while scurvy is encouraged by the absence of cleanliness, and the dampness of the atmosphere, and not by the nature of the food, which is always fresh and generally nutritious.

"Of all the dirty and wretched places that I have ever seen, Sitka is pre-eminently the most wretched and most dirty. The common houses are nothing but wooden hovels, huddled together, without order or design, in nasty alleys, the hot-beds of such odors as are themselves sufficient, independently of any other cause, to breed all sorts of fevers. In a word, while the inhabitants do all that they can to poison the atmosphere, the place itself appears to have been planned for the express purpose of checking ventilation. But Governor Etholine, whose whole management does him infinite credit, sees the evil, and is introducing many improvements, which, when completed, will materially promote the comfort and welfare of the lower classes."

NEW ARCHANGEL.

"New Archangel, notwithstanding its isolated position, is a very gay place. Much of the time of its inhabitants is devoted to festivity; dinners and balls run a perpetual round, and are managed in a style which, in this part of the world, may be deemed extravagant. Among other gayeties, that took place during my visit, was a wedding between one Pauloff, mate of a vessel, and a rather good-looking creole girl, about twenty years old, and named Archimanditoffra. Attended by their friends, and the principal inhabitants of the establishment, the happy couple proceeded about six in the evening to church, where a tedious service of an hour and a half, was solemnized by the monk. At the close of the ceremony, which comprised

fully the usual proportion of dumb-show, the bridegroom led off his bride to the ball-room. I was going to say that he was followed by his guests; but the expression would have been incorrect, for the guests were not his. The sufferer in these cases, according to the rule made and provided in Russia, is the individual, who has enjoyed the honor of giving away the lady—an honor which, however unpleasant in itself or in its incidents, no man is expected to decline. Archimanditoffra's father, for the occasion, was Lieutenant Bertram, one of the company's principal officers. On entering the ball-room, the bride and bridegroom took their station at the upper end, where Lieutenant Bertram described a variety of mystic signs on their breasts with the bridal cake, which, being thus consecrated, was sent off as fit for use. The newly married pair sat side by side, while every gentleman, in his turn, drank to their health and happiness in a glass of champagne.

"On this occasion were assembled nearly all the beauty and fashion of Sitka, the latter quality, if I may presume to offer an opinion, being perhaps more conspicuous than the former. The ladies were showily attired in clear muslin dresses, white satin shoes, silk stockings, kid gloves, fans, and all other necessary or unnecessary appendages; and these fair ones enjoyed the advantage of being at a high premium, inasmuch as the gentlemen, who amounted to about fifty, outnumbered them in the proportion of nearly two to one. The ball was opened by the bride and the highest officer present; quadrilles and waltzes followed in quick succession; and the business was kept up with great spirit till three o'clock in the morning. The band was of a superior description, some of the clerks and servants being fine performers, who exerted themselves to the utmost. The master and the paymaster of the ceremonies did his duty like a prince. Tea, coffee, chocolate, and champagne were handed about in profusion, varied, at proper intervals, with sandwiches and liquors, while a smoking room, besides being a necessary of life to many, afforded a place of retreat to all such as did not wish to take part in the dancing.

"On these matrimonial occasions, the father of the bride, however hard his lot, gets off much more cheaply than some of the other auxiliaries in the drama. According to a law of the church, the bridesmaids and bridesmen are prohibited from marrying each other; but as, in the limited society of New Archangel, where the lottery consists of so few tickets, youths and maidens would never officiate together on such forbidding terms, the church has indulged Sitka with a special dispensation in this respect."

We have in a previous number, June 1847, presented an ample sketch of the Sandwich islands, their trade, prospects, resources, government, &c., but the following interesting particulars will be new to many of our readers:

AGRICULTURAL PRODUCTS OF SANDWICH ISLANDS—SUGAR,
SILK, COTTON, RICE, &c.

"Among the more important productions of the islands, SUGAR deserves to occupy the first place, if it were only that His Majesty, Kamehameha III., has turned his attention to the manufacture of

the article. The yellow cane, which is indigenous, is alone cultivated. Though its juice is acknowledged to be of excellent quality, yet hitherto the sugar has been of an inferior description through the want of skill and experience. There is little doubt, however, that, in time, art will do justice to nature, when once the business has got into the hands of capitalists. The growers are already numerous, if not wealthy, as the following extract from a letter, which I received from Messrs. Ladd & Co., sufficiently shows: 'The quantity of land under cultivation by natives, and others, in the vicinity of our mill is so great, that latterly we have abandoned its culture and allow our works to be employed in manufacturing sugar for cultivators, returning to them one-half of the products. We regret to say that our works are entirely inadequate to the wants of the planters, and much cane will unavoidably be lost the present and coming season.' But the grand difficulty in the way is the want of a market, more particularly as the group is effectually cut off, both physically and politically, from the rest of the world. Still the difficulty does not amount to a ground of despair. Considering that the article is retailed at five cents, or two pence halfpenny, a pound, about 90,000 natives might surely consume, at least with the help of foreign residents and foreign visitors, something like a ship-load among them in a year, while, with a little management and negotiation, the islands might supply with sugar nearly all the coasts of both continents above their own latitude, California, the Oregon, the Russian settlements both in Asia and America, and ultimately Japan. If the Archipelago could once secure this foreign trade, it could hardly ever be dislodged from it by any rival, so long as it enjoyed the nautical advantages of being the great house of call, both in the length and in the breadth of the Pacific ocean.

"SILK appears to have fewer obstacles to surmount than sugar. The mulberry yields six crops in the year; and females, who can reel half a pound a day, are contented, in addition to their food, with six cents and a quarter, or a fraction more than threepence, paid in goods at an advance of *cent per cent.* on the prime cost. Under these advantageous circumstances, an article of superior quality can be sold for a dollar and a half per pound, so that it can command, freight and duty notwithstanding, a remunerating price either in England or in America. Silk, however, cannot be produced so extensively as sugar, inasmuch as the mulberry thrives only in such places, few and far between, as are completely sheltered from the trade-winds. The principal establishment, which is in Kauai, is under the management of Mr. Titcombe, an American of industry and enterprise. He is expected to succeed in his speculation, though his countrymen, who were the original projectors, failed in it, partly because they had everything that was peculiar to the soil and climate to learn, and partly because some of them had good reason for placing very little confidence in the others. If the business in general should prosper, it might be worth while to import skilful and experienced laborers from China, at least for the purpose of superintending the more delicate processes.

"Tobacco, cotton, coffee, arrow-root, indigo, rice and ginger, thrive luxuriantly throughout the group. TOBACCO was, at one time, pro-

hibited ; and, in order to prevent exportation as well as consumption, the 'denounced' weed was torn up by the roots as a public enemy. The absurd system has, I believe, been abrogated ; and, at all events, tobacco grows in the face of day without caring for church or State. *Coffee*, an innocent enough beverage in most countries, also fell under the ban of the earlier missionaries, probably as being a boon companion of tobacco, but more probably because, in furnishing an article of export, it tended to inundate the islands with the accursed thing in the shape of commercial civilization. Whatever was the cause, the coffee shared the same fate as the tobacco, being first destroyed by fanaticism and then replaced by common sense. As I have already mentioned, it is, in my opinion, equal to Mocha ; and, when grown in sufficient abundance, it may, I doubt not, be exported with advantage to almost any part of the world. *Indigo*, though it thrives well, is yet not likely to be extensively cultivated by reason of the breadth of land which it requires—at least so long as other crops, less precarious and more profitable, can advantageously occupy the soil. *Cotton* has only of late become an object of attention to foreign residents ; the article, as prepared by the natives, was, of course, not fit to be sent to market. Of *arrow-root* the same may be said. Intrinsically it is of fine quality ; but so negligent are the manufacturers in washing and drying the article, that a small parcel, lately sent to England by The Hudson Bay Company, did not cover cost and charges. *Ginger* grows spontaneously in lavish abundance throughout the group ; but as yet it has not attracted any notice. *Rice* is but little cultivated, chiefly because the most favorable situations for the purpose, which, on account of the scarcity of water, are not numerous, are already occupied by that grand staff of life, the *kalo*."

MANUFACTURES OF SANDWICH ISLANDS.

"To pass from productions to manufactures, the most showy specimens of native art are the military banners of the chiefs. The *kahile*, as the banner is called, consists of a pole elaborately inlaid with ivory, tortoise shell and human bone, at the upper end of which are fixed plumes of feathers, similar to those that are used at funerals in England, excepting that the colors, instead of being black, are the brightest possible, green, yellow, red, &c. These *kahiles*, as I have elsewhere stated, are more or less splendid according to the rank of the owners. The great banner of the Kamehamehas, which, now that they don't go to war, is displayed only in the funeral processions of the members of the royal family, is thirty or forty feet high, and requires several men to support it. A humbler, but more useful, article of native manufacture, is rope for rigging the double canoes or for any other purpose to which rope can be applied. Some of it is made from the cocoa nut, some of reeds, and some of grass ; but all is strong and well laid. But the principal manufacture of the group is the *kapa* or cloth. It is made of the inner bark of the wouty tree (*morus papyrifera*), which, after being reduced to a pulp, is beaten out to such a degree of thickness as may be desired, while the face of the fabric is susceptible of infinite variety, according as the face of the mallet is smooth, or grooved, checked, or marked

with diamonds or any other figures whatever. In itself the article is of a light color, while, by bleaching, it may be rendered perfectly white. But to the simplicity of nature the aborigines of both sexes generally prefer a gayer hue; and for this purpose they stain the cloth with a number of indigenous dyes, comprising all the possible shades of brown, yellow, green, and red, several colors being frequently contrasted in a kind of Mosaic on one and the same piece or web. Of all the native manufactures perhaps this alone enters into general commerce. It is used for the sheathing of ships, for which purpose it is, in the north Pacific, preferred to felt; it has certainly the recommendation of cheapness, as five or six sheets of twelve feet square may be had for a dollar. In this article the king is the principal dealer, for, in the shape of taxes, his majesty is glutted with cloth, and is glad to part with it at a reasonable rate."

COMMERCE OF THE SANDWICH ISLANDS.

There are views opened here over which every American ought to ponder. Taken in connection with the great purposes of a canal now contemplated between the oceans, or a railroad, they have a most special bearing and application.

"When the ports of Japan are opened, and the two oceans are connected by means of a navigable canal, so as to place the group in the direct route between Europe and the United States on one hand, and the whole of Eastern Asia on the other, then will the trade in question expand in amount and variety, till it has rendered Woahoo the emporium of at least the Pacific ocean, for the products, natural and artificial, of every corner of the globe. Then will Honolulu be one of the marts of the world, one of those exchanges to which Nature herself grants in perpetuity a more than royal charter.

"If these anticipations—and even now they are not dreams—be ever realized, the internal resources of the islands will find the readiest and amplest development in the increase of domestic consumption, and the demands of foreign commerce. In some direction or other every native production will follow its appropriate outlet; and, in a word, the Sandwich islands will become the West Indies of all the less favored climes from California to Japan. As I have already remarked of one or two articles in particular, the greater part of the exports will most probably meet their best market in the Russian settlements. In them, the necessities, as well as the luxuries, of life are pearls of inestimable value; and, if expedience could justify aggression, the czar might more excusably have seized this Archipelago than ever any one else appropriated a foot of land that did not belong to him. Even now France and America and England might be more willing to let the Sandwich islands fall into the hands of Russia, than to see them continue liable to be seized, on some pretext or other, by any one of themselves.

"In all this mighty work, whether it be wholly or partly accomplished, our own race will furnish the principal actors. The commerce of this ocean will be ruled and conducted by England, aided and RIVALED ONLY BY HER OWN REPUBLICAN OFFSPRING OF AMERICA (let the reader mark this from an Englishman); and the merchants of these two nations, the most enterprising merchants and the most

powerful nations that the world has ever seen, must decide, with a sway greater than that of princes, the destinies of this sea of seas, with its boundless shores and its countless isles. In this respect the past and the present, as they must strike the most superficial observer, are sufficient guaranties for the future.

"But the position of the Sandwich islands, which I have hitherto considered in its bearings on international intercourse, is not less commanding with respect to fisheries than to commerce. In the upper half of the Pacific, there are three principal whaling-grounds, one on the Equator, another near Japan, and the third towards the Russian settlements, while, generally speaking, the same vessels pass, according to the season, from one scene of operations to another. Now this Archipelago, as the hastiest glance at the map must show, could not have been better placed, if it had been exclusively intended by Providence to be a common centre for the whaling-grounds in question; and if, on the intermediate ocean, there be specks superior in mere situation, certainly not one of nature's other caravanseras, within the assigned limits, has been either so conveniently fitted, or so bountifully supplied. In consequence of these unrivaled advantages, the ports of the group—particularly Honolulu, in a far higher proportion than all the other ports put together—have long been visited by all the whalers of the North Pacific for refuge and refreshments, while they have gradually come to be frequented for ordinary repairs, and, also, for stores and equipments of every description. It is chiefly with reference to the supply of these civilized wants, that foreign merchants and foreign mechanics have established themselves in the group, thus forming such a nucleus of local enterprise as is likely to effect a material change, equally beneficial to all parties, in the system of prosecuting the fisheries. As has already begun to be the case with the adjacent coasts, so has it been with the adjacent waters; in the one instance, as well as in the other, the Sandwich islands, from being the tavern of the traders, promise to become the entrepôt of the trade. Even now, several small whalers are owned in Honolulu; and there can be little doubt, that, from year to year, the port in question, like Sydney in the South Pacific, will engross a larger share of the business, storing the oil to be freighted to its ultimate destination. With such an example before them, the whalers in general will be led to separate the two naturally distinct departments of the work, the fishing and the carrying—a division of labor, which will be profitable in more ways than one. At present, the vessel loses at least ten or twelve months in going and coming; and thus a year's interest on the heavy expense of her special outfit, is almost literally thrown into the sea. At present, the oil, instead of being sent, fresh and fresh, to market, lies, on an average, half the time of the cruise in the hold; and thus are two capitals hazarded to earn the returns of one, while, in order to aggravate the evil, the dead stock is stowed away in the most costly warehouse in the world. At present, the officers and crew are selected with almost exclusive reference to their skill and boldness in pursuing and capturing the whale; and thus, during a period of perhaps three years, of which, at least, a half is not spent in fishing, the owners are obliged to leave their property at the mercy of men, who, to say nothing of the general absence of the

higher qualities of a mariner, have undertaken the management, rather of the ship's boats than of the ship herself. Surely, the remedying of these defects would be worth a month or so of warehouse rent, and the charges of transshipment.

"To conclude this chapter with a brief view of the actual state of trade, there arrived in Honolulu alone, from 1836 to 1839, inclusive, three hundred and sixty-nine vessels. Of these, the whalers amounted to two hundred and fifty-five, all but five being either American or British. As many of the whalers, particularly when they require nothing but such refreshment as the islands themselves yield, call at other ports, perhaps the annual number of this class of arrivals cannot be estimated at less than a hundred. During the same period, the imports of Honolulu—equivalent, I take it, to the imports of the group—averaged, one year with another, nearly 340,000 dollars at prime cost; and, what is to my mind far more worthy of notice than their mere value, they had been brought from the United States, England, Prussia, Chili, Mexico, California, North-west Coast, Tahiti, with other southern islands, China and Manilla. Again, during the same period, the exports averaged, one year with another, about 78,000 dollars, of local value, consisting of sandal wood, hides, goat-skins, salt, tobacco, sugar, molasses, kukui oil, sperm oil, the produce of a vessel fitted out from Woahoo, arrow-root, and sundries. All these articles, as may be seen from the qualified description of the sperm oil, were native productions. But of exports, properly so called, the true amount differed considerably from the foregoing statement. Under the head of sundries was included little or nothing but supplies of meat and vegetables for the shipping; and, as the head in question amounted, as nearly as possible, to a half of the whole, the exports, in the technical meaning of the word, would be not 78,000 dollars, but 39,000 dollars. The exports proper, however, were rapidly increasing. In 1840, down to the middle of August, as compared with the whole of the preceding year, hides, at two dollars each, had risen from 6,000 to 18,500 dollars; goat-skins, at twenty-five cents each, had risen from 1,000 to 10,000 dollars; sugar had risen from 6,000 dollars, at six cents a pound, to 18,000 dollars, at five cents; molasses had risen from 3,000 dollars, at twenty-five cents a gallon, to \$7,300 at twenty-three cents; and arrow-root had risen from nothing, in 1839, the average of the preceding three years having been less than 300 dollars, to 1,700 dollars in the part aforesaid, of 1840. To add one particular more to this statement of arrivals, and imports and exports, there were owned in Honolulu, in 1840, ten vessels by foreign residents, seven by American citizens, and three by British subjects; and besides these more considerable craft, which averaged one hundred and thirty tons, there were five small schooners owned by natives.

"Of the imports a considerable proportion, as I have elsewhere stated, is again exported—a feature, by the by, in the trade, which is a more characteristic omen of the future than any amount of internal demand."

JAPAN.

During the last session of Congress Mr. A. H. Palmer, of New

York, addressed to the Secretary of State at Washington an interesting letter on "Oriental Commerce," and the duty of establishing consular relations with the East. Mr. Palmer has since given notice of his intention to publish a work upon these climes. We introduce a page from him upon Japan :

"In agriculture the Japanese are very diligent and successful. It is compulsory on every tenant to till and improve the land in his occupancy, under penalty of ejection and confiscation. The whole country is, in consequence, highly cultivated ; producing rice (esteemed the best in Asia), wheat, rye, buckwheat, barley, beans, and esculents of all sorts, culinary vegetables, a great variety of fruits, and flowers of the most brilliant hues and exquisite fragrance. Sugar is made from the sap of a tree like our maple. The mulberry is reared solely for the silk-worm. The principal article of cultivation, next to rice, is the tea plant ; tea being the universal beverage of all classes, as in China. Their gardeners possess the skill of dwarfing and gigantifying trees and shrubs. The rivers, lakes, and seas, abound in a great variety of fish, oysters, and shell fish, which are the principal food of the lower classes. Whales are very abundant in those seas, and many of the natives are employed in the whale fishery.

"The internal trade is very considerable. By land, merchandise is conveyed on pack-horses and oxen, over good roads, by which all the large islands are intersected ; but the principal transportation is by water, in coasting vessels from 50 to 200 tons burthen. The prince of Satzuma, island of Kiu-siu, has a number of vessels, some of them 100 to 200 tons, trading between his port of Kagósima and Napakiang, in the Loo-choo islands, the Majicosima group, and to different ports of the empire and its dependencies. At Sinagawa, the outport of Yedo, a thousand vessels are sometimes collected, some bearing taxes from different parts of the empire ; others laden with produce, merchandise, or fish.

Their manufactures of silk are celebrated ; their finest porcelain is equal to that of China ; the coarser inferior, but substantial and durable. Of their fine lackered ware, we are assured no adequate idea can be conceived from the specimens seen in Europe or this country, as the best quality is not allowed to be exported. Their sword-blades are said to be the finest in the world, bearing the fine edge of a razor, and capable of cutting through an iron nail. Their artificers in gold, silver, copper, and steel, have a high character. They manufacture telescopes, barometers, thermometers, watches, and clocks, of curious workmanship,

"The shops and markets of the principal towns are well provided with every description of agricultural produce and manufacturing industry, and are crowded with people from the most distant parts of the empire. Accounts are published from time to time of the general state of trade and agriculture, and prices current for the chief articles of traffic at the trading marts of Yedo, Miako, Ohosaka, and Semoneski, in the island of Nippon ; Sangar, Kokura, and Nangasaki, in Kiu-siu ; Tosa, in Sikokf ; and Matsmai, in Jesso ; and a variety of regulations are in force to protect home industry.

"A post for letters is established throughout the empire, which,

though pedestrian, is said to be very expeditious, by relays of letter carriers running at full speed.

"The circulating medium of Japan is gold, silver, and copper, but only the gold and large silver pieces can properly be called coin. They bear the mint stamp, and are of ascertained value; smaller silver pieces and all the copper pass by weight. Paper money is likewise current in some principalities, and bills of exchange are in use among the merchants.

"The southern islands teem with many of the productions of the tropics, while the northern yield those of the temperate zones. The mountains abound in mineral wealth of every description, and the volcanic regions in sulphur.

"Among the products of Japan may be enumerated diamonds and precious stones; gold, silver, copper, and iron, of which it has many productive mines; tin, lead, tutenague, sulphur, coal, saltpetre, salt, camphor, pearls, corals, ambergris, rice, tea, wrought silk, cotton, tobacco, lackered ware, porcelain, and earthenware. Their imports comprise cotton goods, linens, woollens, raw and wrought silk, glassware, hardware, quicksilver, antimony, zinc, cinnabar, amber, hides, skins and leather, sandal and sapan wood, dye woods, Malay camphor, ivory, alum, cloves, mace, pepper, sugar, coffee, seal-skins, whale oil, &c. The exports are chiefly of copper, camphor, lackered ware, &c. American cottons carried to that market by the Chinese traders have yielded a good profit, and are in increasing demand in Japan and Corea."

"From their first intercourse with Europeans, commerce had always been regarded with favor by the Japanese, and the princes and governors held out every inducement to the foreign merchants to come to their ports for trade; which, for a lengthened period, was mutually beneficial, and yielded them enormous profits. It was their respect for the superior scientific knowledge of the early Jesuit missionaries, a desire to profit by their instruction, and to attract foreign trade to the empire, which induced the higher classes to favor and protect them; and until Catholicism fell into disfavor, the government seems never to have prohibited any importation except of priests. *Kemper* states that for several years prior to the expulsion of Europeans from the empire, the annual export of gold amounted, according to the Dutch reckoning, to 300 tons; and of silver 2,350 chests.

"Sir Stamford Raffles, when acting governor of Java, in 1813, sent three commissioners (of whom Dr. Ainslie was one) to Nangasaki, to obtain information respecting Japan. They returned with the impression that the Japanese were entirely free from any prejudices that would stand in the way of an unrestricted intercourse with Europeans. Even their religious prejudices appeared to the commissioners moderate and inoffensive. Commerce with that empire, both in export and import, was, in their opinion, extensible to a long list of articles not yet exchanged, and capable of great increase.

"The articles required and in use in Japan were stated by Dr. Ainslie to be—*Woollens* of every description, they are partial to primary colors (there are no sheep raised in Japan); *hardware*, likely to be very extensive; glass (fond of cut-glass of every description), window and plate glass in demand; carpeting of different descrip-

tions ; printed cottons of fine texture and brightest patterns ; iron-mongery, including tools of every description, iron chests, &c. ; tin plates, lead, stoves, door-locks, and porcelain of handsome patterns ; fire-arms, clocks, watches, and fire-engines ; stationery, leather of light colors, lace, mock jewelry, &c."

Art. V.—THE CIVIL LAW.

THE systems of judicial procedure in the history of Roman jurisprudence are three in number. First, the system of actions of the law (*legis actiones*) ; secondly, the system of procedure by formula (*per formulam*), also called ordinary procedure (*ordinaria judicia*) ; and thirdly, the system of extraordinary procedure (*judicia extraordinaria*). The first continued to the law Æbutia, A. V. C. 583 or 597. This period and this system are characteristic of the primitive Romans ; they are marked by the original rudeness of a rough tribe, bear the patrician and sacerdotal impress, and are filled with the symbols and material forms of unformed civilization. The second period continued to the reign of Diocletian, year of Rome 1047, A. D. 294. In this period, the labor of the prætor and of the philosophic jurisconsult influenced and modeled the rude materials of the primitive system. The all-embracing spirit of the plebs has expanded the narrow and confined system of the patrician and the priest. "C'est l'administration de la justice qui," says Ortolan, "de la domination patricienne passe dans la science ; c'est le génie juridique de Rome qui se transforme de patricien et de quiritaire qu'il était, il devient plèbèien et humanitaire ; c'est la plèbe qui s'affranchit, c'est l'étranger qui participe à la justice Romaine." (Général., § 86.) The third system, from an exception under the second system (whence its name *extraordinaria judicia*), became the general rule, first in the provinces, under Diocletian, and afterward throughout the Roman empire. This is the system, in the main, which continues in force in nearly all modern Europe. Let us take a general view of these systems.

At first, the right of declaring the law (*jus*), and the authority to decide the matters in controversy (*judicium*), were considered as perfectly distinct, were for the most part kept separate, and confided to different hands. To the magistrate (*magistratus*) was given the power to declare the law ; to the judge (*judex*) was left the examination of the matters in litigation, and the termination of the contest by a sentence. By a figure of speech, to be *in jure*, was to be before the magistrate charged with declaring the law ; to be *in judicio*, was to be before the judge authorized to terminate the controversy. This separation between the *jus* and the *judicium*, between the magistrate and the judge, appears to correspond, in some degree, with the distinction among the moderns between questions of fact and questions of law. Nevertheless, it would be error to suppose that the office of the judge was limited to the decision of mere questions of fact. To him was not only confided the weighing of facts, but also the determining of their judicial effect. His right to decide

the law, however, depended on the nature of the case, and on the extent of the powers conferred by the magistrate. This distinction between the magistrate and the judge existed under the first system, but was not generally adopted in practice. Under the second system the separation became complete, and it was only occasionally and by exception (*par extraordinaire*), that the magistrate himself performs the duties of a judge. Under the third system the extraordinary became the common—the two functions were re-united, and it was only by exception that they are separated.

The law (*jus*), and the declaration of the law (*jurisdictio*), were confided to a magistrate invested with the sovereignty of the State, and having authority in all cases. The judge was selected from a designated class for the particular occasion. The parties were allowed to choose their own judge. If one was proposed to them by the magistrate, they might accept, or refuse, without assigning any cause. If the parties could not agree, the judge was selected by lot. Whether agreed upon by the parties, chosen, or appointed by lot, he was given to the litigants by the rescript of the magistrate. It was a public charge, which no person was at liberty to refuse. A single magistrate and a single judge, as a general rule, sufficed for a single case, with liberty, however, to aid and assist himself by assessors and juriconsults, whose counsel they might take as a means of enlightening their own judgment. Already created, but almost unknown in its details, under the first system of procedure—organized and developed in an admirable manner under the second—this beautiful theory disappeared under the third.

Under the first system the magistrates were (at Rome), primarily, the kings, then the consuls, then the prætors, and, for certain affairs, the ediles; in the municipies, the decemvirs—consuls on a small scale (*consuls au petit pied*); in the provinces, which began toward the close of this period, the proprætors and the proconsuls. As judges: the judex, selected for each case, and who could only be taken from the rank of the senators; the recuperatores, for whom the choice is less restricted, who are always many (from three to five) for each case; finally, the centumviri, chosen annually by the comitia from the tribes. Such are the authorities who act under the system of the action of the law. In certain cases the magistrate performed the functions of the judge; in other cases he sent the parties before a judge proper: but in what cases the trial should take place before the judex, when before the recuperatores, and when before the college of centumviri, is not fully understood.

Having examined the judicial powers, let us now notice the forms of action during this period. The actions of the law, from whence this system took its name, were five in number; three were forms of procedure prior to, and used for the purpose of producing, the decision of the matter in dispute; and two were used for the purpose of carrying the decision into execution. The first three were: First, the *actio sacramenti*, the most ancient of all, which applied, with some variations of form, to the pursuit both of obligations and the rights of property, but the characteristic of which, common to all cases, consisted in the *sacramentum*—a sum of money which each litigant was compelled to place in the hands of the pontifex to go, on

the part of the loser, to the profit of the public worship (*ad sacra publica*). Second, the *judicis postulatio*, which refers to the demand made of the magistrate for a *judex* to sit on the case, and which appears to have been a general remedy, also, for the pursuit of different rights. Finally, the *condictio*, the most recent of the actions of the law, and exclusively used for the pursuit of obligations. The two last of the actions of the law, used to carry the judgment into effect, were: The *manus injectio*, corporal seizure of the person of the condemned debtor, by means of which the debtor was adjudged (*addictus*)—given in proprietorship to the creditor, by the prætor; and the *pignoris capio*, or seizure of the property of the debtor. Action, in the phrase, actions of the law, is a generic term, embracing the whole procedure. The five above enumerated were called actions of the law, says Gaius, either because they were creations of the law as contradistinguished from creations of the prætor, or because they were drawn up according to the strict letter of the law (*legum verbis accommodatæ*), and with rigid adherence to established terms.

This was the period of symbols. Here figured the lance, the clod of turf, the tile, and other material representatives of ideas and objects. This was the age of words clothed by the law with a sacred character—technical terms embracing a large number of particulars, the use of which was essential in juridical acts. He who should use the word vines (*vites*), because his suit related to vines instead of the word trees (*arbores*), a technical term of the law comprehending all the growths of the earth, would lose his case (Gai. 4, §§ 10 and 30). The reader will note the resemblance to the strictures of the primitive common law. This system is impressed by the sacerdotal finger. We see this in the sacramentum—the deposit of a sum of money in the hands of the pontiff as the first step in the action; and in the *pignoris capio*, accorded at first for the price of the victim sold for the altar, or for money due for the hire of a beast of burden, when the money was destined to be spent by the creditor in sacrifices. These and other instances, show the large influence of the Etruscan customs in the early constitution of Rome. Here, also, the patrician rule is in all its vigor. The magistrate is patrician; the *judex* can only be taken from the patrician order. The institution of the *centumviri* and of the *recuperatores* appears the first commencement of a change in this respect, destined to produce most important results.

The gradual expansion of these rude elements is strikingly exemplified in the *actio sacramenti*. The forms of this action so far as it related to the recovery (*vindicatio*) of a thing or real right, were detached from this action, and received a fictitious employment, thereby furnishing a way of arriving at results not authorized by the primitive law, or subject to more difficult conditions. This ingenious fiction consisted, when one person wished to transfer to another a real right, in the feigning upon the part of the latter, before the magistrate, a reclamation or *vindicatio* of this right. He brought suit, to use modern phraseology, for that which did not belong to him, as if it were his property;—he who wished to transfer it, did not contradict or deny the claim—whereupon, there being no contest as to the facts, the magistrate declared the law, and adjudged the thing or real right

to him who had reclaimed it. The common law student is again reminded of some of the fictions of his own system. From this fictitious employment of the *vindicatio*, may be deduced the transfer of the ownership, or title, of things corporeal and incorporeal; the transfer of tutelage; the manumission of slaves (*manumissio vindicta*); the emancipation of children, and the adoption of sons of families.

The actions of the law, bearing, in the strongest degree, the marks peculiar to the judicial acts of civilization in its infancy, soon experienced a change. Their character, sacerdotal, patrician, symbolic, and dangerously technical (*sacramentellement perilleux*), became more and more inconsistent with the manners and social constitution of the Romans. Above all, they were to the Plebs, the remains of a servitude, against which they had so long contended. We learn from Gaius that they had become unpopular in the sixth century. Abandoned, afterward, in actual practice, by a resort to the judicial forms created for the foreigners, they were legislatively suppressed by the law *Æbutia*, and the two Julian laws. Their sole employment, at last, consisted in their fictitious use in the judicial sales, and other similar cases.

Under the second system, the system of formulæ, or ordinary procedure (*judicia ordinaria*), the distinction between the magistrate and the judge became clearly marked. The magistrate is still single for each jurisdiction, the judge for each cause. But the custom of calling in the aid of skilful jurisconsults, by whose means to clear up the difficulties of a cause, received a wonderful impetus during this period, in which the law had become so beautiful a science. Those who acted in the capacity of magistrates were: at Rome, the prætors, gradually added to and increased to the number of eighteen (18) in the time of Pomponius—the ediles, the prefect of the city, and the Prætorian prefect;—in the provinces, divided by Augustus into the provinces of the people or senate and the provinces of the prince, the governors of each province, under the different titles of proconsuls, proprætors, lieutenants of Cæsar (*legati Cæsaris*), presidents (*præsides*), or prefects. These latter, at stated times, held assizes (*conventus*) in the principal towns of their province. Above all these, was the emperor, the supreme magistrate, pronouncing the decision as the court of last resort. The judges consisted of the *judex* or arbiter given for each cause, the *recuperatores*, and the college of *centumvirs*, which retained their functions, although in a declining condition, to the end of the second period. The most remarkable change in relation to the *judex* grew out of the extension of the right of acting in that capacity to all citizens. After having been bitterly contested for half a century, from the time of the Gracchi to the age of Pompey, between the equites and the senators, the *judicium* passed these orders, and extended to the people. Five *decuriæ*, or lists of citizens called to be judges, were made out each year by the prætor in the forum, in the midst of the people, and publicly exposed. The first *decuria* composed of senators, the second of equites, the third of soldiers, the fourth and fifth, the one added by Augustus and the other by Caligula, of citizens paying an inferior tax. These were the *judices* for the year, from these lists were they chosen for each case. "La caste," says Ortolan, quite happily,

“superieure est déchuë de son monopole ; la Plèbe est affranchie de la justice patricienne : le citoyen, comme nous dirions en langue, est jugé par ces pairs” (Général., § 94).

During this period the consecrated words and acts, the symbols and material objects have disappeared. They are replaced by the science of the law. The magistrate charged with organizing the *judicium*, performs his duty by delivering to the parties, after the judicial proceedings which take place before him (*in jure*), a formula, which is to govern in the future steps to be taken. The parties go before the magistrate, the plaintiff makes his charge (*intentio*), the defendant sets up his defense (*exceptio*), the plaintiff, if need be, replies (*replicatio*), to which there may be a *triplicatio*, &c., in a manner very analogous to the common law mode of special pleading. From these reciprocal allegations and statements the magistrate makes out his formula, as a direction to the *judex*. He states first, by way of inducement, the subject-matter of the controversy, then he settles the points which the plaintiff must sustain by proof, the defense to be established by the defendant, and any other reciprocal matters of charge and reply of the parties litigant, and finally he declares the judgment which is to be given according to the result of the trial—sometimes fixing strictly the judgment to be pronounced, at other times leaving more or less latitude to the judge. The redaction of these formulæ is then the most important part of the procedure under this system. The whole care of the law is directed to this point. The most renowned jurisconsults are consulted by the suitors, and by the magistrate. Each right has its appropriate formula. These formulæ are drawn up in advance, incorporated into the law, and exposed to the public. The plaintiff points out before the tribunal of the magistrate the form he requires; the elements are canvassed between the parties, the formula accommodated to the particular case, and finally delivered by the *prætor*.

The demand of the formula was styled, “*postulatio, impetratio formulæ, vel actionis, vel judicii.*” The principal parts of the formula were :

1. The caption. “*Judex esto.*”
2. Demonstratio. The statement by way of inducement, which might be omitted. “*Quod Aulus Agerius Numerio Negidio hominem vendidit.*”
3. Intentio. The specification, or summary of the claim of the plaintiff, which constituted the essential part of the formula : “*Si paret hominem ex jure Quiritium Auli Agerii esse.*” We have seen that the defendant might admit the plaintiff’s claim to have once been just, and set up a defense in avoidance ; to which the plaintiff might reply, and so on. In such cases the *exceptio, replicatio, &c.*, were noticed in this part of the formula. Thus, suppose the *intentio* to be “*Si paret Negidium Aulo Agerio sestertium x millia dare oportere.*” The *exceptio* would be “*Si in ea re nihil dolo malo Auli Agerii factum sit neque fiat,*” or, “*Si inter Aulum Agerium et Numerium Negidium non convenit ne ea pecunia peteretur.*” And so of the *replicatio, triplicatio, &c.*
4. Condemnatio. The order to the judge to condemn or acquit,

according to the weight of the evidence. "Si paret, condemnato." "Si non paret, absolvito."

5. *Adjudicatio*. The adjudication, confined to three forms of action, by which the magistrate confers upon the judge the power of giving to the successful party the ownership of the object of litigation: "*Quantum adjudicari oportet, judex utio adjudicato.*"

The formula, then, it will be noted, was nothing more than the mutual allegations of the parties, reduced to writing, and so arranged as to bring the matters in controversy to a single issue. If, instead of sending the parties with this formula to a *judex*, the magistrate had impaneled the *judices*, *centumviri*, or *recuperatores*, and submitted the matters in controversy to them, and upon their decision passed judgment, the proceedings would have been similar in substance to the proceedings in a trial at common law. The reader will be reminded of the analogy at every step.

When the magistrate, instead of following the formulary procedure and sending the parties before the *judex*, thought proper to determine the cause himself, the form of procedure was called, "*extra ordinem cognitio, extra ordinem cognoscere; extraordinaria judicia; actiones extraordinariæ.*" Even under the formulary system this was the course always adopted in certain cases; in the *restitutio in integrum*, where a person was completely restored to his original rights; and the *missio in possessionem bonorum*, where a person was put in possession of goods without the delay of going before a *judex*. Under Diocletian, the formulary system began to expire under the more frequent use of the extraordinary procedure. A constitution of that emperor, A. D. 294, established, as the general practice in the provinces, this system, which had previously been only an occasional procedure. Afterward the rule was extended over the whole empire. The system of formulas gave place to the *judicia extraordinaria*—the third system.

"Le gouvernement est imperialisé," remarks Prof. Ortolan eloquently. Ce qui fut la constitution de Rome n'existe plus. L'aristocratie des familles patriciennes et la susceptibilité remuante de la Plèbe dorment dans l'histoire. La population primitive a même disparu sous un alluvion incessante de toutes les populations. Depuis Constantin, Rome et le Tibre sont déchus; Constantinople et le Bosphore les remplacent; l'empire n'est plus Romain, il est Asiatique. Il se divise en quatre grandes Préfectures; l'orient, l'Illyrie, l'Italie, les Gaules; chaque Préfecture en Diocèses; chaque Diocèses en Provinces l'Italie est une Préfecture! Le Christianisme est la religion de l'état." (*Généralisation*, § 102.)

The government is imperialized—the pride of the patrician, the restless ambition of the Plebs sleep in history. Italy is a Prefecture! The motley population of a conquered world have taken the place of the stern old Roman. The gorgeous worship of the Etruscan priesthood has been replaced by the religion of the crucified Nazarene. The empire is no longer Latin, it is Asiatic.

This profound revolution is equally traceable in the judiciary system. There is no longer any question about patrician magistrates charged with declaring the law; there are no longer any contests between the senators, and the equites, and the Plebs, for admission

into the list of *judices*. There are no longer any *decuriæ* prepared in the forum annually, before the people, and publicly exposed to view. The city no longer chooses its magistrate, the citizen his judge. These, also, sleep in history.

The Rector or President of each province; the *vicarius*, vicegerent, or other lieutenant delegated by the Prefect; the *Prætorian Prefect* judging upon appeal as representative of the Emperor, and, for final recourse, the Emperor himself; for inferior courts, the local magistrates of each city, with an inferior and limited jurisdiction; Rome, Constantinople, and Alexandria, with their separate systems; the fiscal jurisdiction, confided by the Emperor to special agents; the military jurisdiction, entirely distinct from the civil; and, finally, the ecclesiastical jurisdiction, obligatory upon the clergy, voluntary upon the laity—such is the judiciary organization during the third period. The distinction between the *jus* and the *judicium*, has disappeared; there is no longer any institution of a judge, any reduction of a formula for each case. The person complaining of wrong or injury summons his adversary before the proper court by regular process—the process is served by a ministerial officer, and the judge decides the cause. That which was the exception becomes the rule. Every procedure is extraordinary.

Such was the law during the reign of the emperor Justinian. Scarce a vestige of ancient Rome remained to her degenerate descendants. Even the memory of her early annals was being lost, and the vigorous tongue of Cato and Tully fast waning before the language of the flexible Greek. The Roman law alone remained. Here was gathered the embodied wisdom of thirteen hundred years, and the abstract intellect of an unrivaled list of eminent juriconsults. And, although the practical administration of the law had lost much of the purity which characterized it in the early days of the Republic; although the stern purity of the magistrate, the unswerving integrity of the *judices*, and the bold freedom of the primitive advocate, had given place to the venality of the imperial vicegerent and the cringing servility of eunuchs and courtiers; it is certain that the law itself could at no previous period have laid stronger claims to be considered as the perfection of human reason. The original simplicity had disappeared before the labors of the philosophic jurists—the code of the *Decemvirs* had expanded into the *Pandects*, the rude covering of form had been thrown off, and the Roman law had assumed the flexible garb of principle, applicable to every age and every country.

ART. VI.—DIRECT TRADE OF SOUTHERN STATES WITH EUROPE.

No. IV.

COMPARISON OF NORTHERN AND SOUTHERN MARKETS
FOR FOREIGN GOODS.

WE desire to continue this series of papers, original and selected, and request the assistance of all friends. We should be delighted for anything sent us under the head. The paper we now publish was prepared by the Hon. F. H. Elmore of Charleston, a name deservedly high in the country. We suppose the facts embodied will not have changed their relations in the short space which has elapsed since the meeting of the Convention.

THE Committee of ten, to which has been referred the resolution of the Convention, directing them to ascertain and report whether goods have not been imported and sold at the southern sea-ports, upon as good terms, and at as fair rates, as they can be procured at the northern—and whether the country merchants cannot *now* procure at the southern sea-ports as full a supply and as good assortments, upon as fair terms, and as favorable periods of payment, as they can be procured elsewhere—and whether there exist any and what advantages in making purchases from the direct importers at the South, respectfully submit the following report:

The inquiries to be made, in the foregoing resolution, are deeply interesting to all the friends of southern direct trade. If facts will justify affirmative answers to them, the success of the enterprise, if persevered in, is unquestionable, unless defeated by the untoward action of the General Government, or a dispensation of Providence against which human prudence affords no safeguard. The facts necessary to entirely correct conclusions on these inquiries, are many, and exceedingly complicated, requiring for their collection, consideration and arrangement, more time and opportunities than the present occasion affords; and your Committee being composed of merchants, dealers, and planters, from the interior of the States and territory represented in this Convention, labor under many difficulties, in the investigation: in the result of which, the Committee, in common with all they represent, have a deep interest, being nothing less than the discovery of those markets where they can sell their staples for the highest, and buy the goods they consume at the lowest prices. Such time and opportunities as they possessed have been employed to the best of their ability, and they submit the result to the consideration of the Convention.

The Southern States have at all times been the producers of staples of great richness and value in the commerce of the world, which from their earliest settlement as colonies, gave them a direct trade with foreign nations, of an extent and importance greatly beyond their proportionate population. The growth and increase of this trade kept more than even pace with the increase of population, and enriched them with a prosperity before unparalleled. Since the Revolution, and during the period of free trade, it grew and expanded to an immense extent, as has been developed in the report of the Committee of twenty-one already submitted to the Convention. The settlement of new States south-west and west, of similar pursuits,

institutions and staples, have swelled the products of their industry, until they are more than three-fourths of the domestic exports, and constitute to that extent the basis of all the foreign commerce of the United States.

The fiscal action of the General Government in the collections and disbursements of its revenue, has always been unfavorable to Southern commerce, and when the additional burdens of the protective system was thrown upon the industry and trade of the planting States, the disastrous effects were apparent in the deserted cities and ruined prospects which blighted the prosperity and broke the spirits of her people. The direct trade which was her own by every law of commerce and nature, and which should have grown and increased every year, grew less and less until it almost disappeared, being by this unpropitious policy transferred to the Northern ports and people. Discouraged by these burdens, our capital sought more propitious locations for its employment, or engaged in other business—our merchants and capitalists removing to the Northern ports with their funds, or withdrawing from commerce and investing in other employments, while others, discouraged by their example, were not found to supply their places and attempt the business they had been forced to abandon. The importing merchants of the South became an almost extinct race; and her direct trade, once so great, flourishing and rich, dwindled down to insignificance.

It would seem to be undeniable that if the same state of things by which these disastrous blows were dealt with such fatal effect upon our direct trade, continues to exist, the South cannot recover what it lost under their operation. It becomes therefore an important point to be determined whether any and what changes or modifications of these circumstances have taken place, which will enable the South again to enter into a struggle for her own direct trade with foreign nations, with any reasonable hope or fair prospect of success.

That such changes have for several years been in progress is most certain, slowly and gradually, but certainly and beneficially. The compromise act has already produced great amelioration, and every biennial reduction is an impulse to enterprise and trade, which has already caused much capital to return, and again filled the old channel with something like its ancient currents of business. The legislatures of the Planting States have, with prudent forecast, availed themselves of the opportunity, and by wise legislation done much to encourage enterprise, and aid individual efforts in the patriotic effort; and it is hoped will yet do much more for this great and vital measure, by lightening the remaining burthens which oppress commercial capital in the heavy taxation on its employment. Lightened of much of that oppressive taxation imposed by the national legislation, and animated by the prospect of still farther reductions, and a well-founded confidence in the fostering care of the State legislatures, the race of importing merchants has revived, and, as individual and partnership firms, re-appeared in our cities, and have embarked large capitals with great spirit in the business. It gives the Committee great pleasure to add, that they have every reason to believe, that their operations have been conducted with the energy and prudence which de-

serves and has been crowned with a success as advantageous to them as it is beneficial to the country.

If we consider the general principles which naturally regulate trade, we see no reason why foreign goods used in Southern consumption, could not be bought by our own merchants at the place of their production, and brought direct to our markets as cheaply as they can be taken to the Northern markets by their merchants. A careful comparison of all the elements of cost, could they be clearly ascertained, might enable the committee to arrive at exact conclusions, but it is impossible for the committee in the time permitted for the inquiry, to attain such certainty in the multitude of circumstances which must be considered—and even were it possible in any given state of things, and at any fixed day, the constant changes of circumstances, the fluctuations of markets, and the thousand occurrences every hour arising to disturb the regularity of trade, the exchanges and the money market, would perhaps, the very next day, vary that statement and present another condition of things—and so also, if all the foreign goods brought into the country for its consumption, were imported by regular importing merchants, more certainty might be attainable. It happens however, so far from this being the case, that immense amounts of foreign goods are often poured into the United States, upon the great points of importation, under circumstances of commercial pressure and distress, producing great disturbance, and fluctuation of prices. At such periods, the manufacturers, if pressed for money, instead of at once reducing the price of goods at their warehouses (which is considered the last thing to be done), generally prefer to make sacrifices of their surplus stocks at distant points—they sometimes ship to foreign ports and sell by their own agents, on their own account, in which case they can lessen the duties by making out their invoices at lower rates, and also escape the addition which is put on the merchant by our revenue laws for the expenses on the invoice, being about five per cent.; they sometimes make loans from mercantile houses having branches in other countries, and deposit their surplus goods as security, upon the agreement that they are to be sold for whatever they will bring, to refund the advance, if they are not paid when due. Great quantities of these goods and also of failing merchants are thrown upon the Northern markets, especially New York, and sold at auction for whatever they will bring—great sacrifices are inevitable, and at such times, purchases may be made at prices which would prove ruinous to the regular importing merchant, whether northern or southern. Such instances should be considered as departures from regular trade, and as exceptions to its general, regular and steady course; although they occasionally not merely influence, but control business and prices, such transactions are not fair examples for regular business—and whether they are beneficial in the long run to the trade and prosperity of a place may well be doubted, as the tendency is to disturb commerce and destroy the regular importing merchant.

Before proceeding more into detail, it will be proper to remark, that the report will be confined, after a few remarks on domestic goods, to those of foreign fabric and importation. The consumption

of domestic goods has increased greatly and is still increasing. It is generally estimated by the merchant to extend already to 33 per cent. of the whole consumption. That they can be bought upon better terms where they are manufactured, than at the southern ports, is generally conceded, except where the manufactures have agencies at the southern ports, and sell at manufacture prices, including freight, insurance, &c. This, to a limited extent, is done, and may and probably will, in the course of time, be done to an extent commensurate with the demands of consumption. But if the southern merchant still goes to the northern manufacturer and buys and brings the goods back with him for sale, it is not the less a direct trade, and he can buy as cheap, and with the exception of the manufacturer himself, sell as low as any other competitor.

It is manifest that the merchant who buys his goods cheapest, and has fewest burthens and expenses upon his business, ought to be able to sell his goods at the lowest prices. It is fair to presume, that what can be done, has been and will be done by our merchants, in fair competition, for the regular trade with their northern brothers. Let us see what are the elements which enter into the solution of the problem—which enjoys the greatest advantages in this honorable rivalry.

In carrying out this comparison, it will be most satisfactory to select places which may be considered fair exponents of the two sections of the Union, and the committee therefore select New York for the North, and Charleston for the South. In selecting Charleston, the committee are influenced by the fact that being there now, they are enabled to procure more information, authentic and at first hand, as to it, than of any other southern importing city; but it is believed that the same general principles and facts, applicable to its trade, may, with such modifications as will readily suggest themselves in each case, be applied to the other southern importing cities respectively.

In the South, the ports are good and safe, and open all the year to ships. In the North many and considerable obstructions exist during a part of it, from cold and ice. The same may be said of their internal communications, the rivers and canals of the North being frozen, and the railroads obstructed by snows and often for considerable periods of time. In the summer, the southern ports are not so healthy, and their intercourse with the interior markets is less in amount and activity. The establishment of railroads, permitting the most rapid travel and perfect safety through the unhealthy districts adjacent, has greatly diminished the impediments of summer trade, especially with Charleston, and will, very soon, with other southern cities, to which similar improvements are extending. New York enjoys great advantages from the perfect system of communication with foreign parts and her customers at home, her immense capital and custom, her commercial connections with Europe, and most especially in the greater facilities her banks give her merchants for credits in Europe, and by discounts at home for long periods and on their customers' notes. Were the only question, which city can sell its merchandise cheapest *in its own stores*, the answer would probably be that New York can generally sell as low or lower than Charleston. But the true question for the southern country merchant is, can he lay down

his goods at his home cheaper from New York than from Charleston, or any other southern port? If he buys lower in New York, and the expenses of getting them home make them cost more than he could get them at from the southern port, his own interest, as well as patriotism, will influence him to deal at his own ports. In coming to a correct understanding of the cost of the goods at the two markets, we must look into the circumstances which create cost and go to fix the prices of merchandise—all the expenses attending traffic must be charged in the profits and taken out of them, and consequently enhance the cost of its merchandise. These expenses, in some important respects, are believed to be greater in New York than Charleston—and the following views are illustrative of this opinion. The foreign goods imported into this country are paid for chiefly by southern produce or bills of exchange, drawn on it. To buy this, the northern merchant must employ his factor or commission agent, and pay from 1 to 2 per cent. commissions;—the southern importer is on the spot where the produce is, and buys, in person, this produce or bills, saving that commission. In general, exchanges on Europe are lowered by 1 to 2 per cent. at the South—at present it is not so, but the general experience has been that way; and the present difference in favor of the North may be ascribed, in a considerable extent, to the great amount of American loans negotiated through New York, creating a larger fund to draw on, a state of things temporary in character. House rents and store rents are believed to be twice or three times as high in New York as they are in Charleston;—clerks' wages are higher; and the expenses of families and living considerably greater. Another charge, which, it is believed, goes considerably to enhance the price of goods, grows out of the manner in which the mercantile business is done in New York. The importer there, as a general rule, does not deal directly with the country merchant. He imports in bales and packages, which he does not break, but sells in bales and packages, quantities too large for country merchants. The business is divided also into almost as many distinct classes of importers, as there are distinct classes of goods. Assortments in quantities to suit the dealer or country merchant, can only be had from another class of merchants, called jobbers. The jobbers, as they want for immediate retail, buy from the importers by the bale or package, and breaking them, sell to the country dealers in quantities to suit their assortments. They are the regular customers of the importers, and if the importers sell to the country merchants, it is usually for cash, or on such rates and terms as will not interfere with the jobbers, who are their chief dependence, and necessary to their business. These transactions, although they assume many variations in the forms of business, may be illustrated as follows: The jobber buys of the importer and gives his bankable note payable at six or eight months, which can be converted at the banks to meet the importer's engagements—the jobber takes the country merchant's note, payable usually a short time before his note to the importer is due. The importer's profits are seldom as low as 10 per cent. often as high as 25, and may safely be averaged at 17½—the profits of the jobber are estimated at the same, or perhaps a greater per cent., because he has to include the loss which he must

submit to, in converting the paper of the country merchant into available funds, amounting to about 4 per cent. on southern notes, which occurs in this way—if the note is offered for discount at a New York bank, that sum is taken off the face of the note for discount, risk, expense of collection and exchange; or if the southern merchant gives his note payable in New York, the exchange, risk of remittance and agency will cost as much and should be added to the costs of his goods. In Charleston, from 1 to 2 per cent. only is taken off, according to the distance the makers live from the city. In Charleston the country merchant deals directly with the importer, who combines in his business all that is done in New York by both importer and jobber: his profits may be said to average from 20 to 33 per cent., greater than either of them singly, but probably not greater, if as great, as both combined. They have two establishments, and probably each his family to support, he only one. But admitting that generally goods may be purchased lower, notwithstanding, in New York, yet there are other items of calculation to be taken into the account.* The country merchant is supposed to make his own selections in person—it will cost him considerably more, and take longer time both for him to go and return, and for his goods to be brought from New York—the interest which occurs on his money while idle—the risks, insurance and cost of shipping to and landing at Charleston, and commissions on forwarding to him when landed at the several points of stoppage on the way to his home, are no inconsiderable elements of price to enhance the cost of the goods.

In one point of view the committee believe that New York possesses an advantage not adverted to above—in a wise policy which burthens her merchants with less state and corporation taxation than some of the Southern States and cities impose. The committee could not procure exact information as to the particulars—but it is understood generally that the port expenses, wharf fees, landing &c., are considerably less. The taxes fall upon the sales only, are light and paid by the purchaser in fact. At the South, port expenses are greater, the States impose considerable taxes on stock in trade, while some of the cities aspiring to the import trade, strangely discourage it by collecting a tax on every dollar's sale of merchandise made within their corporate limits, a tax both of the State and corporations

* The following statement is made upon information furnished by experienced merchants.

IN NEW YORK.		IN CHARLESTON.	
Cost of goods, duty off, say	\$100 00	Cost, duty off, - - - - -	\$100 00
Duty paid by Importer, - - -	23 50	Add duty paid by importer, - -	23 50
	123 50		23 50
Profits of Importer, 17½ per cent.	21 61	Profits, including interest for 6 months, and all charges, at 33 per cent.	41 17
Sold to Jobber for - - - - -	145 11		
Profits of Jobber at 20 per cent.	29 02		
Sold to Southern merchant for -	174 13	Sold to country merchants for	164 67
Freight to Charleston, expenses, insurance, loss on exchange, &c., at 5 per cent. }	8 70	Saved to Southern merchant by purchase in Charleston exclusive of expenses of traveling to the North, }	18 16
The cost of the goods to merchant landed in Charleston, }	182 83		\$182 83

calculated upon returns required on oath, and which are in their nature inquisitorial and repugnant to the merchant's feelings.

For the want of packets and shipping, much of the import trade of Charleston is made by her own merchants through New York; the goods are bought by them in Europe, shipped in New York packets to New York—unloaded there, and reshipped to Charleston; in all such cases, there are increased expenses of commissions, insurance and freight on the voyage, and delay which is still more injurious; the goods therefore cost the importer more than similar goods coming direct to Charleston, but still are cheaper than he could buy them in New York. Another and important consideration is the credit which can be had in the two places. It has been already shown, that, as a general rule, the credits given to the country merchant in New York, will average from six to eight months. In Charleston, during the past season, the credits given by the wholesale merchants have gone from six to twelve months, averaging perhaps nine or ten months. The medium of payments is not less important—payments in New York are by bank notes at a discount, or exchange at a premium. In Charleston the committee are informed, that the bank notes of most of the Southern States are taken at par, constituting a saving of from 1 to 3 per cent.

After weighing all statements and arguments submitted to the committee, they have come decidedly to the opinion that foreign goods may be imported into, and sold at the Southern ports as cheaply and upon as good terms, as at the North; and perhaps it is not going too far to say, upon better—an extensive inquiry among them enables the committee to say, that such is the opinion generally entertained by the best-informed merchants. Acting upon this opinion, during the last season, they have made importations upon a scale greater than has been done in twenty years, and as the committee are informed, at rates that would allow their sale upon terms more favorable than the New York market has afforded. Many instances were laid before the committee, illustrating the operation of the direct and circuitous importations on prices, from which the committee will select a few, coming from sources of the highest respectability, not as conclusive proofs that all the trade has been of a similar character, but as giving some data, by which the truth may be approximated. While it is conceded that the business of a single season, nor perhaps the cases cited are such proofs of the stability of the trade or its general character, as may be considered conclusive, yet when they come in support of the general principles upon which the committee have based their opinions, they cannot fail to have weight.

One of the committee, an experienced merchant, living more than 100 miles in the interior of South Carolina, imported direct the whole of a considerable stock of goods, for the last and present year's sales. He visited New York afterward, and examined the stocks and market carefully—he states, that the same kind of goods were as high or higher, than his would cost him, all expenses included, at his own store. One article especially was greatly more so, to wit, negro blankets—his standing him at his store in \$25 the piece, while for the same quality they demanded \$33 in New York, a price he could have sold for at home, and realized 32 per cent. profit.

A firm in the city of Charleston lately imported a large supply of goods direct, and about the same time had an order filled for similar goods in New York, which, they state to the committee, cost them full fifteen per cent. higher than those imported direct. Among them was a case of cassimers, a match case to one imported, the same in every respect, and costing near 30 per cent. higher than the imported case.

Another firm of this city, largely engaged in the wholesale trade, has a partner residing in New York, by whom about one-third of their stock is purchased there, the balance being imported direct. They inform the committee, that the goods purchased in New York have cost them from 15 to 20 per cent. higher than similar goods imported direct.

In regard to the assortments of goods now in the Southern sea-ports, the committee are uninformed, except as to Charleston—in which city the supply has been greater than any had there for thirty years past, containing excellent assortments of foreign goods. Of domestics—the assortments, though better than heretofore, has not, it is understood, been either as varied or good as at the North. The great market of New York must afford more range of selection at all times, but it may be questioned whether it affords a much greater variety of goods suited to the Southern market, or of better staple. Most of the importing houses, during the past summer, had partners in Europe, who were well acquainted with the wants and tastes of the Southern people, and made their selections to suit—and, notwithstanding the trade of the city has been far greater than was anticipated, they have still managed to keep their stocks at a respectable rate, and are now understood to have very good assortments. A strong proof, not only that the assortments have suited the demand, but that the rates have been better than could be obtained at the North, exists in the increased business; the sales of this season notwithstanding the epidemic of the last summer, are computed at 25 per cent. advance on those of the year preceding. Many intelligent and enterprising dealers from the interior towns, villages and country, who formerly traded to New York, with a full knowledge of all the facts necessary to proper conclusions, have discontinued trading with New York, and made their purchases here—and others, after persisting in going there, and purchasing, have returned here, examined the stocks, and regretted they had lost time and money by going. While greater activity has pervaded this market, a comparative stagnation has fallen upon that part of New York which has heretofore participated largely in our trade. One firm, which has a house both in Charleston and New York, sold on the capital employed the past year full 75 per cent. more goods in the former than in the latter city. These are gratifying evidences that our trade is falling back in its ancient channels, and again returning to fertilize and re-people its ancient home.*

* In one of the best New York commercial papers, the Herald, of the 4th of May, inst., since the adjournment of the Convention, is the following paragraph of its commercial report. The confirmation it gives to this statement is perfect, as it estimates the falling off of Southern trade at 75 per cent. The insinuation that it is for want of credit to the Southern merchants, is undeserved, and will no doubt be duly appreciated by them.

"The Southern trade may now be said to be over for the spring. It has been ex-

The last branch of the resolution directs the committee to inquire if any and what advantages exist in making purchases from the direct importer at the South. Many have been pointed out in the preceding pages of this report—others have been more ably and emphatically explained in the report submitted by the Committee of twenty-one. There are some of these which may be adverted to presently—for the moment, however, others not yet mentioned will be remarked upon.

It is certainly good policy in the retail merchant to concentrate his dealings, if he can, at the same market, provided his supplies can be got there on as good terms. It has already been shown, that in Charleston the assortments are good, the supply ample, the terms fair, and the credits favorable. There are parts of the retailer's supplies which he can get nowhere so well as at the Southern sea-ports—West India groceries for instance. By purchasing the other goods necessary for his business at the same market, he simplifies his business, contracts it to a single point nearer to him, and where he can avail himself of more means to meet his payments—all kinds of country produce may be taken by him from his customers, and made as available at the spot where he owes his debt, as money itself.

Another advantage results from it. His customers will buy more freely when his goods are fresh. That merchant does the best business whose goods best suit the wants and tastes of his customers, he need buy no more at a time than will meet ready sale—for, being near his market, he can in a very short time get more goods of a given kind if needed—he thus makes a smaller capital do a large business, and runs little risk of sustaining losses by goods growing old on his hands and going out of fashion.

The committee of twenty-one have urged with great force a view in relation to this branch of the subject, which cannot be too highly estimated, to wit: the accumulations which result to the capital of the country, by keeping its own trade and the profits on it at home, increasing the means of the importer for enlarging his importations, and extending his credits and accommodations. The official reports from the Treasury give us some data on which to base a calculation, which may not be without its use. In 1834, 1835, 1836, 1837, and 1838, five years, the exports to foreign countries, of domestic produce, from Charleston, was by Custom-house valuation, \$58,000,000, throwing off fractions. To this must be added for what was sent coastwise, perhaps 25 per cent. or 14,500,000, making in all of domestic produce, \$75,500,000, or an average of \$14,500,000, by Custom-house valuation. If the moderate rate of 10 per cent. be added, as their value in foreign or Northern markets where they are sold, it will make an average annual amount of near \$16,000,000, which

ceedingly light, probably not more than one-fourth the amount from the same sections during the spring of 1836. This is particularly true of the hardware business, which trade has, however, received a great accession from other quarters, and the aggregate sales in this line will reach, without doubt, 50 per cent. more than last spring. In consequence of the difficulties with the Southern banks, and the continued high rate of exchange, many orders have not been expected from that quarter; goods are therefore scarce, a fact which leads us to anticipate a large fall trade from all quarters. Southern merchants are beginning to discover that prompt payments are, on the whole, the best policy. The question is now no longer with our merchant, is a man rich? but, is he prompt?"

should have returned to Charleston, in the shape of goods and other supplies for the consumption of the country which furnished the exports. If from this amount two-fifths be taken, for articles of domestic growth and manufacture, which we have received in exchange, there will remain upward of \$9,000,000 worth of goods consumed through Charleston, the importer's profits on which will not be less than 25 per cent. or two and a half millions annually. If its commerce were to remain stationary, and not increase for ten years to come, and we take this sum as the measure of profit, and admit that only one half of it or one and a quarter million of dollars, would be annually added to the importing capital, without calculating any profits on this addition, twelve and a half millions would in that period be added to the permanent resources of this most important class of our citizens. If the same principles of calculation are extended to the whole Southern country, the benefits grow immensely upon the mind, prefiguring a career of prosperity which will add vast power and influence to the South, and give new guaranties for the stability of her institutions. The safety of investments and the certain profits in our trade, will offer, when known, inducements to the superabundant capital of other sections and even of Europe itself, to seek a location among us in new mercantile firms, in partnerships or agencies of foreign houses, or loans to our own merchants. If a part only of these anticipations be realized, advances will probably take place in the wealth, developments in the resources, and an invigorating influence be produced on the arts, the industry, enterprise of the country, in all the benefits of which, no class will participate more largely than the country merchants. In the improved condition of their customers, new wants will spring up and a greater demand for goods arise, at the same time that a better market will be created at home, to buy from them whatever of the staples or produce of the country they may have to sell; and larger stocks and wider ranges of goods will be offered for the selection of their assortments, at prices and credits more favorable as capital and competition increases.

Art. VII.—RICE.

IN the elaborate paper prepared by Mr. Allston, upon this subject, published by us in April, 1846, almost everything of importance relating to it is embraced. We desire, however, to keep up information upon this subject, and shall direct circulars to rice-planters in Carolina and Georgia for their aid.

Dr. Shepard, of South Carolina, under direction of the Agricultural Society of that State, analyzed, a year or two ago, completely, the rice plant and soils. The analysis is of sufficient importance to have place in our Review. We have, in previous numbers, given the analysis of sugar, corn, cotton, etc., and their lands.

1.—OF CLEAN COMMERCIAL RICE.

Burned in a porcelain capsule under the muffle, until all combustible matter had disappeared, a blebby glass-like ash remained, weighing 0.404 per cent., or

less than half a part in one hundred of the rice consumed.* Corrected statement of mineral constituents of clean rice = 0.487 per cent.

Composition of 100 parts of this residuum.

Phosphate of lime (bone-earth), with decided traces of intermixed phosphate of magnesia.....	76.20
Phosphate of potassa, nearly 5 per cent.....	} 24.8
Silica, sometimes as high as 20 per cent.....	
And the following salts in traces only. They are enumerated in the supposed order of their abundance, viz.:	
Sulphate of potassa.....	
Chloride of potassium.....	
Carbonate of lime.....	
Carbonate of magnesia.....	

2.—OF THE COTYLEDON, COMMONLY CALLED THE EYE OR CHIT OF THE GRAIN.

Ignited under a muffle on a porcelain plate, it burns with a bright light, and the ash flows into a glass. From the intimate way in which it adhered to the plate, it was impossible to determine its weight, or even its composition, in a satisfactory manner. The expression 6.824 per cent., however, may be taken as an approximation to the weight of the residuum. In composition, it appears scarcely to differ from the ash of clean rice, except in being somewhat richer in lime, and in the phosphoric and sulphuric acids.

3.—OF THE FINE RICE FLOUR, AS IT COMES DOWN ON THE BULK.

It gives, on burning, a bulky, porous ash, weighing 10.746 per cent. of the flour consumed. Corrected as above = 12.30 per cent.

Composition of 100 parts of this residuum, as follows:

Silica, with traces of combined potassa.....	38.02
Phosphate of lime, with traces of phosphate of magnesia.....	54.60
Phosphate of potassa (rich in this salt)	} and loss..... 7.38
Sulphate of potassa.....	
Sulphate of lime, in traces.....	
Chloride of calcium, ".....	
Chloride of potassium, ".....	
Lime and magnesia, ".....	
	100 00

4.—OF COARSE RICE FLOUR, FROM THE BULK.

It gives, on burning, a bulky, porous ash = 11.23 per cent. Corrected statement = 11.831 per cent.

Composition of 100 parts of this residuum, as follows:

Silica, with traces of combined potassa.....	69.27
Phosphate of lime, with traces of phosphate of magnesia.....	28.94
Phosphate of potassa (rich in this salt)	} and loss..... 6.79
Carbonate of potassa, in traces.....	
Sulphate of potassa, ".....	
Lime and magnesia, ".....	
Chloride of calcium, ".....	
Chloride of potassium, ".....	
	100.00

5.—OF THE HUSK, COMMONLY CALLED CHAFF, OR OFFAL.

Burns, with little or no flame, into a perfectly white, silicious skeleton of the husk. In weight it equals 13.67 per cent.

* It being requisite to determine the inorganic ingredients of rice, and of the various parts of the entire plant, as it may reasonably be supposed, they are returned to the soil again on the decomposition of the plant and its parts (whether taking place spontaneously or otherwise,) and not to give those ingredients in all cases as they are actually yielded to us in the process of destructive analysis, I shall subjoin many of the constituents of the ashy residue not as found, but rather as the principles of chemistry authorize us to declare them, in accordance with the above requisition.

Composition of 100 parts of this residuum, as follows:

Silica.....	97.551
Phosphate of lime, with traces of alumina and oxides of iron and manganese.....	1.023
Carbonate of lime.....	0.294
Phosphate of potassa.....	} and loss.....
Sulphate of potassa, in traces.....	
Chloride of potassium, ".....	
Carbonate of potassa, ".....	
	1.132
	<hr/> 100.000

6.—OF THE RICE STRAW.

Burns into an ash which is a semi-fused, glassy frit. It weighs 12.422 per cent.

Composition of 100 parts, as follows:

Silica.....	84.75
Potassa, with probable traces of soda, combined with the above silica....	8.69
Phosphate of lime, with traces of oxide of iron and manganese.....	2.00
Carbonate of lime.....	2.00
Alumina, in traces....	} and loss.....
Phosphate of potassa..	
Carbonate of potassa..	
Sulphate of potassa..	
Chloride of potassium }	
	2.56
	<hr/> 100.00

7.—RICE SOIL FROM WAVERLY ISLAND.

Silica, with fine sand, one-third of which is feldspathic and slightly magnesian or talcose; and contains alumina, with from 2 to 4 per cent. of potassa, mingled with soda and magnesia.....	47.75
Alumina, partly combined with humic acid.....	12.35
Peroxide of iron (combined with humus), with decided traces of phosphate of lime (bone-earth).....	4.15
Carbonate of lime, with traces of magnesia.....	0.40
Water of absorption.... 8.50 }	}
Humus (organic matter) 23.50 }	
Chloride of calcium.....	} and loss.....
Sulphate of lime....	
Sulphate of magnesia.....	
Sulphate of potassa..	
Chloride of sodium..	1.35
	<hr/> 100.00

8.—RICE SOIL FROM MATANZAS ON THE MAIN.

Silica, with fine sand as above.....	60.50
Alumina, partly combined with humic acid.....	8.15
Peroxide of iron, combined with humus, with decided traces of phosphate of lime.....	3.00
Carbonate of lime, with traces of magnesia.....	0.85
Water of absorption.. 9.00 }	}
Humus..... 18.50 }	
Chlorides of calcium and of sodium }	} and loss.....
Sulphates nearly as above.....	
	1.00
	<hr/> 101.00

Since rice culture is likely to be extensively adopted before very long in the low, river, and bottom lands of Mississippi and Louisiana, we deem the preservation of this matter important. The reader will find great advantage from consulting Col. Allston's paper above referred to, and as containing additional valuable particulars, we introduce some remarks made by Mr. Ruffin, in his late agricultural survey of South Carolina:

GENERAL DESCRIPTION OF THE TIDE SWAMPS IN THEIR NATURAL STATE.

The great body of alluvial swamp lands on the Waccamaw and

Peedee rivers, and subject to their tides, are of similar general character to all other swamps formed by the alluvium of fresh tide waters. In South Carolina, and generally elsewhere, the soil being wholly formed by matter deposited by the rivers and by the remains of plants which died and rotted where they grew, these lands are necessarily composed very largely of vegetable matter, mostly decomposed; and so far as that composition may serve, they were as rich as lands could be, and of an unknown depth of soil. Their earthy parts are mostly of fine clay, such as could remain long suspended in water, and which has been mostly brought by the long course and turbid current of the Peedee. Of course, rivers flowing through calcareous regions, and washing down fertile and well-constituted soils, must have also brought down much calcareous matter intermixed with the clayey, and serving to fix and retain the great and enduring fertility which these lands have exhibited under the long-continued and increasing drafts made by incessant rice culture. Still there cannot be near enough of lime in these soils; and there is a still greater deficiency of the ingredient of silicious sand necessary for a properly constituted soil of the best productive power.

The rise and level of the tides have necessarily fixed the final elevation and grade of surface of all such lands. The earthy matters brought down the river by its floods would continue to be deposited on the marshes, and wherever else the water was most tranquil, until such deposited earth reached to the level of the height of tide water. The lower the surface was at any previous time before this height, the more water, loaded with materials for alluvium, would be over it, and the more it would receive of the tribute. And when, by such additions, the surface had risen to the full height of ordinary high tide, it would no more be covered, except on rare occasions, and of course its increase would almost cease. Thus, there was for ages a constant tendency of the waters to raise all the lower parts the fastest, and to make the lower equal in height to the highest. And when this was done as nearly as might be over any certain extent, the operation ceased there, and was continued lower down toward the sea.

Thus, the alluvial lands formed by the deposits of tide rivers necessarily have surfaces very nearly level. The only general and slight exceptions are seen in the channels of small creeks or "slues" as they are called, which are needed to give discharge to the retreating waters, the rapidity of the motion of which serves to keep such passages open and deeper; and also that the land next the river side is generally higher than that farthest off, and next to the high lands. The cause of the latter effect is also obvious in this, that the water first leaving the more rapid course of the river, and spreading over the swamp, must necessarily deposit most of its suspended earthy matter first, and carries only the lighter portions to the more remote ground. However, the slope thus made is so gradual, that the difference of elevation is very slight between parts of the same swamp. This general evenness of surface is in a remarkable degree favorable to rice culture, which requires overflowing the crop at a depth as nearly equal as possible.

The trees forming the natural growth and dense cover of such

lands are of great size and vigor—principally of tupelo gum, ash and cypress. The undergrowth of cane, and numerous perennial or annual vines and water grasses, serving in summer to make a dense thicket. The earth, always saturated with water, is rendered firm only by its close and deep mat of roots of every description, and but for this, would be a quagmire in its natural state, and the more so in proportion to the excess of decomposed vegetable matter in the marshy soil. Also, according to the large quantity and excess of vegetable matter, will be the subsequent sinking of the land, after draining and cultivation. The excess of vegetable matter in any soil, over and above all that is chemically combined with the soil, is liable to rot and waste away. And such must be the case, sooner or later, on all tide marshes, the drying and cultivation of which produces the commencement of rotting, which the before continual wet state of the earth prevented.

All the tide swamps are not capable of being properly subjected to rice culture. There must be a sufficient "pitch of tide," or ordinary variation between the levels of high and low tides, to enable the lands to be, at any desired time, either quickly flooded, or as quickly to have the overflowing water discharged. The latter object is opposed more and more by the freshets the higher the rivers are ascended, so that the upper tide lands are from this cause too precarious for rice culture. Again, salt or even brackish water is fatal to rice; and therefore the usually fresh water tide-lands near the sea are as much in danger of "salts;" that is, of the water, when needed for flowing the crop, being contaminated by salt, owing to a dry season and a scant supply of river water from above. Thus, omitting the upper tide lands, too much endangered by the river being swollen by rains, and the lower lands, too much endangered by salt tides in dry seasons, there remains on all the rivers but an intermediate body of tide lands fit and safe for rice culture.

THE GENERAL MODE OF EMBANKING, DRAINING AND CLEARING TIDE-SWAMPS FOR RICE CULTURE.*

WHEN a body of new tide swamp on the Waccamaw or Peedee was to be brought under rice culture, the first process has been to cut down and clear off all the trees and under-growth of bushes, cane (or reeds), &c., along the course designed for the outer embankment, for the width of about 50 yards, or such distance as would prevent the subsequent cutting down of the remaining large trees injuring the works. In making this clearing, care is taken to leave untouched a margin next to the river-side; which ought to be, but rarely has been, as wide as from 50 to 80 feet, varying according to the irregularity of the water-line. The trees, &c., cut from the cleared space, are moved inward among the standing trees, or far

* For the substance and for all that may be of any value in the following statement and description of rice culture and management, I am indebted to verbal information, which I derived in conversation with practical and judicious rice planters, and principally from Dr. Edward Heriot and John H. Allston, Esq., in regard to the subject in general, and as to the more usual modes of culture and management of Rice; and to Messrs. Stephen Ford and S. C. Ford in regard to "Leggett's" and the "All-Water" plans of flooding and cultivation, as practised on Black river.

enough to be out of the way both of the outer embankment and the main ditch within and next to it. The site of the outer embankment is then determined precisely; and along the centre of its intended base there is dug a ditch 3 feet deep, 3 feet wide at top, and as much or nearly so at bottom. This digging is for two purposes: first, and principally, to remove all stumps and roots of trees from below the bottom of the future outer embankment, which, if left, would, in subsequent time, by their rotting, cause leaks to be produced; secondly, the earth dug out of this central ditch is laid regularly and closely just outside of its edge, and forms a bank sufficient to exclude the ordinary high tides from covering the land, and troubling materially the main operations which are to follow, for thoroughly embanking and clearing the land. Through this first low bank, at a suitable outlet, there is put in one of the ordinary tide-trunks, such as will serve afterward for one in the finished embankment, and which will serve sufficiently to exclude the high tides, and at low tide to discharge any accumulation of water in the area, from rains, springs, or leakage of the low bank.

When carrying around this first ditch and slight embankment, all the low places which serve as outlets of small creeks or "slues" are omitted at first. When all the other parts are finished, these lower parts are undertaken, for which a different and more laborious procedure is necessary. For the length across each such slue, two parallel lines of strong stakes or piles are driven perpendicularly and deeply into the mud, and the lines wider out from the designed large embankment than its two base lines. "String-pieces," or long horizontal timbers, are placed outside of and against these upright stakes, 2 to 3 feet lower than the designed height of the bank; and these string-pieces kept in place, and made to brace and support the lines of stakes, by upright and much stronger and longer piles driven at intervals of 4 or 5 feet outside of the string-pieces, and opposite to each other across the intended embankment; and, as high as its top is to be raised, cap or cross pieces, made of round cypress poles 6 or 8 inches through, extend from each of these piles to its opposite pile, securing them in place, and the whole structure together, by mortises in the cap-pieces held by tenons on the posts. The embankment is then made within this frame-work, fully as high as the general level of the small bank, if it be not convenient then to complete the full intended size at once at these low places.

The central ditch being completed, with its bank and the trunk fixed (its bottom, as in all cases, being even with lowest tide), the inner and outer lines of the base of the outside embankment are staked off—which is usually not more than 12 feet wide (and sometimes less), for a designed height of 5 feet. It ought to be 15 feet, or thrice as much as the height, at least. Within the inside base line of the embankment, stake off another line parallel to it, and 15 feet distant, if the soil be stiff, or 20 feet if light and porous, which space is for the *inner margin*. This width is for the river-side, or exposed parts of the embankment. If along narrow creeks, or cross-banks, the inner margin need not be more than 10 to 15 feet. Along the inside of this margin is laid off the main ditch, 8 feet wide, and

5 deep, with sides nearly perpendicular.* Out of this ditch all stumps, roots and buried bodies of trees should be entirely removed. But this is not often faithfully done; nor is the ditch always dug 5 feet deep. The earth dug out should be thrown by the ditchers as far as they can toward the site for the embankment. Afterward, when it has stood long enough to be in good condition, or is neither too wet nor too dry, this earth is thrown by women and other inferior hands to first fill the central ditch, and then to build up the embankment; keeping the earth nearly within the limits of the base. After standing long enough to be somewhat consolidated, the sides of the bank are trimmed to their proper slope, making the embankment 5 feet high, generally, 3 feet wide at top, and as before stated 12 feet (or more) at bottom. The rise of ordinary tide is 4 to 5 feet†—spring tides, 12 to 15 inches more. The general level of higher land at first usually above common high tide. If the main parallel ditch does not furnish earth enough to make the bank everywhere, the deficiencies are supplied by digging earth where it can be best spared from the wide outside margin; but care should be taken, if this course can be ever justifiable, at least not to dig anything nearer than 15 feet from the outside base line of the embankment. Unfortunately this care has been in general practice but little regarded. Generally, too little margin was left at first; and nearly all which was left at first has been since cut away to heighten the embankment, so as to leave it exposed to the winds and waves, and requiring enormous annual labor and expense to oppose the destructive action of storms upon the embankment.

In beginning to bring in any one body of marsh, no matter how large, it is sometimes better to carry the first operations, already described, around the whole (except the land side, of course), although the subsequent entire clearing of the forest may require a long time for completion. Of so much of the land as is designed to be cultivated the first year, after the above-described operations, all the cane, bushes, and smallest trees are cut down, then the smaller size only of larger trees, which are lopped, and the bodies cut into lengths of 12 or 15 feet, leaving from 5 to 7 of the largest trees standing in each half acre. At a dry time the next spring, and with a good wind, fire is put to the windward side. The effect is according to circumstances; but it is deemed "a good burn" if all is consumed except the logs. If there is much cane, it serves so well as fuel, that the fire is much more effectual; in other cases, much less. The remaining logs are heaped and burnt when convenient; but by some persons often left scattered on the ground for years. The large trees left standing are afterward killed by belting, or taken out for timber as needed for use.

The land cleared should be divided into fields of convenient shape and size, and each one be separated from the next by cross embankments, and surrounded, except on the sides where joining the high land, by large ditches parallel to the cross embankment. These em-

* This is wrong. A wider ditch, with well-sloped sides, would stand much better, and need less clearing out and subsequent repair.

† The greatest rise of tide low down the river—the least highest up—and in proportion between the extremes.

bankments being only to keep out of one field the water admitted into another, need not be more than 7 or 8 feet wide at base, and 3 feet high—or 2 feet less high than the outer or main embankment. If however they could be as large, it would be better; as then a breach in and overflow of the outer embankment might be kept from overflowing all but the first field. The ditches furnishing earth to make them, need not be more than sufficient for that purpose, or 5 feet wide and 4 to 5 deep. The margin between the bank and the ditches is 10 to 15 feet wide. Each field thus separately embanked and ditched, should discharge and receive its water by a separate trunk connecting with the river or creek. Or if it be a back field not joining such natural outlet, then into a canal confined within two banks, and discharging through a trunk into the river. However, when such a canal is needed (as is usual) for navigation to the barns, &c., as on many plantations, then it is dug 15 feet or more, with margins say 10 feet wide, and in time becomes sometimes 20 to 25 feet, by its sides falling in, and successive clearings. There is no trunk in such case, to exclude the tide; and therefore the two banks on the sides must be high and strong enough for that purpose. Sometimes, however, the navigable canal, instead of being always open to the river, is separated from it at its outlet by a floodgate, wide enough to pass the largest flats used in transporting the crops. This is the better plan, where the canal is long, as it protects the banks on each side of it.

In laying off the land into separately embanked divisions, or fields, regard ought especially to be had to having the surface of each one as nearly equal in level as possible, so that it may be flowed and drained equally. This consideration should have most influence in shaping the fields. As to the proper size, if the level be alike, that depends much on the amount of working force; as no one separately embanked division ought to be larger than the hands can finish any one operation upon in one day. Twenty acres make a very good quantity for the size of trunk used.

The tide trunks used are well planned and constructed for this purpose. The trunk is 4 feet wide by 2 deep. Both ends are cut sloping, so that the bottom of the opening extends 1 inch farther out than the top. The valve or door to close the end, hangs from upright arms rising 10 or 12 feet from the bottom, by long mortises in the arms, or hinges far above the trunk, and closes it by the mere pressure of the water, when higher that side of the bank than on the other. The other end of the trunk has a like valve. But a great improvement in the trunk, which has not been very long introduced here from Savannah, is to have each gate to be raised by sliding upward (as a floodgate does), as well as to swing open by pressure of water from the opposite end. Thus, a valve can be hoisted by sliding up, by use of a lever, when the tide is pressing the valve to the aperture; whereas were it merely to open by its hinges, it could not be done until after the fall of the tide on that side, or higher rise of the water on the opposite side. This simple improvement is of great convenience and utility.

When thus embanked, wide ditched, and as yet but very imperfectly cleared, the land is put the next season under rice culture.

The then still remaining higher level of the surface, and the open, loose, and permeable texture of the soil, filled as it is with roots and other undecomposed vegetable matter, make this slight drainage sufficient at first, and perhaps for some years after. As the surface subsequently becomes lower, and more compact, by decomposition, settling, and tillage, more close and perfect drainage will be needed. And the natural drains furnished by the former beds of crooked creeks and small "leads" are deepened, and side, or "spring" ditches will then be required, and should be cut 3 or 4 feet wide, along the foot of all the high lands, whence springs ooze out. Afterward, when farther drainage is found wanting, straight drains are cut in each field, 20 to 24 inches wide and 3 feet deep, parallel to the longest straight side of each field, and to each other, discharging at each end into main ditches, and either 300 or 150 feet apart, according to the wants of the land. After another or more crops, the intervals left between these narrow drains are split in two by other similar drains; and again, when needed, others made in like manner to subdivide the land, until these parallel drains are at every 75 feet apart, as is usual lower down Waccamaw island, where the freshets have less effect to flood and low tides more effect to drain, or at 37½ feet, as usual higher up the rivers. The working acre is not the same size, of 4,840 square yards; but, as marked and estimated in all culture in lower South Carolina is a space of 300 feet by 150, or 5,000 square yards. And thence, the drainage at 75 yards is technically called "quarter draining," and that at 37½ yards as "half-quarter draining." When the drains are very long, it is usually best to intersect them at right angles, by cross-drains, at distances of 3 and 4 half acres apart. With making all these, the general and usual plan of draining is complete; and thereafter, the planter has but to preserve and keep in perfectly good condition for operation, his embankments, ditches, and floodgates, or tide trunks. And to do this requires continued care, and annual and great labor, which are increased greatly according to the amount of omissions or defects of the early construction of the embankment, or retaining of sufficient outside margin. Regularly every winter or as early as may be in spring, all the drains are cleared out, and such of the main ditches as require it; and the mud from the latter used to partially repair the waste of the adjacent banks. The farther waste and defects of the banks, made necessarily by decomposition of the vegetable portion of the earth itself, or by its being washed away by the waves of the river, or of the "flows" dashed against the banks, are repaired by earth from the most convenient places—and generally (and destructively for the future), by cutting away the outside margin, until none is left, and the whole force of the breaking waves is thus allowed to be spent upon the embankment on the river-side. The consequences of this very general error will be again brought into view.

When a considerable leak has been made through, the bank is cut through at that place down to the leak, and the passage carefully stopped. When an old bank has by neglect become generally leaky, or admitting oozing water, it is "split" or "centre ditched." A narrow ditch is dug lengthwise along its middle, and down below the leaks, and the opened space is then filled up by "slush," or the

soft mud obtained by clearing out the ditches. A better filling material for such a central ditch is used by some persons in the purest sand they can obtain. This prevents the burrowing of snakes, crawfish, and other small animals, which often make leaks.

Art. VIII.—CULTURE OF SUGAR AND COTTON IN THE EAST INDIES.

Our attentive English correspondent, P. L. Simmonds, Esq., F. S. S., has, among other important and valuable papers relating to the British Possessions, put us in possession of sundry parliamentary reports and files of colonial gazettes, particularly of the East and West Indies, which embrace a great variety of information upon Sugar and Cotton. These will be of great service to us hereafter, and will, without doubt, be found to contain much that is valuable, or at least interesting to our planting interests. It is important that we should know precisely the movements which are taking place in every section of the world, bearing upon sugar and cotton, staples of such immense consequence to our whole country. Having published a series of papers upon our own culture, etc., we think no apology can be needed for presenting the valuable papers, however lengthy, from Mr. Simmonds' work upon the culture of the *INDIES*, our threatened rival.* They were prepared by Geo. W. Johnson, brother of the celebrated agricultural writer of the same name, and are based upon reports, etc., made to the East India Company a year or two ago from every quarter of India, with the utmost particularity and precision.

SUGAR.

THERE are three kinds cultivated in India: 1. The purple; 2. The white; and 3. A variety of the white, requiring a large supply of water. The epitome of the reports affords this information.

1. The *purple-colored cane* yields a sweeter, richer juice, than the yellow or light-colored, but in less quantity, and is harder to press. Grows on dry lands. Scarce any other sort in Beerbhoom, much in Radnagore, some about Santipooore, mixed with light-colored cane. Grows also near Calcutta; in some fields separate, in others mixed with pooree or light-colored cane. When eaten raw, is more dry and pithy in the mouth, but esteemed better sugar than the pooree, and appears to be the superior sort of cane. Persons who have been West India planters do not know it as a West Indian cane.

2. The *light-colored cane*, yellow, inclining to white: deeper yellow when ripe, and on rich ground. West India planters say it is the same sort as that which grows in the West India islands; softer, more juicy than the Cadjoolee, but juice less rich, and produces sugar less strong; requires seven maunds of pooree juice to make as much goor or inspissated juice as is produced from six of the Cadjoolee. Much of this kind is brought to the Calcutta markets, and eaten raw.

3. The *white variety* which grows in swampy lands, is light-colored, and grows to a great height. Its juice is more watery and yields a weaker sugar than the Cadjoolee. However, as much of Bengal consists of low grounds, and as the upland canes are liable to suffer from drought, it may be advisable to encourage the cultivation of it, should the sugar it produces be approved, though in a less degree than other sugars, in order to guard against the effects of dry

* Col. Mag., vols. ii. and v.

seasons. Experience alone can determine how far the idea of encouraging this sort may answer.

Punsaree, Reonda, Mungoo, Newar, Kiwahee.—Different sorts produced in the Benares district; probably some of them may be of the sorts already described. The punsaree and reonda appear to be the most productive and the most esteemed.

Besides the foregoing, several kinds are now known to the Indian planter. One of them, the China sugar-cane, was considered by Dr. Roxburgh to be a distinct species, and distinguished by him as *Saccharum Simensis*. It was introduced here in 1796, by Earl Cornwallis, as being superior to the native kinds. It is characterized by a hardness which effectually resists most of the country rude mills; but this hardness is importantly beneficial, inasmuch as that it effectually resists the attacks of the white ants, hogs, and jackals, which destroy annually a large portion of the common cane.

Dr. Buchanan found that four kinds were known in Mysore. Two of these are probably the purple and white generally known; but as this is not distinctly stated, I have retained the form in which he notices them. *Restali*, the native sugar of the Mysore, can only be planted in the last two weeks of March and first two of April. It completes its growth in twelve months, and does not survive for a second crop. Its cultivation has been superseded by the other.

Puttaputti.—This was introduced from Arcot, during the reign of Hyder Ally. It is the only one from which the natives can extract sugar; it also produces the best *Bella* or *Jagory*. It can be planted at the same season as the other, as well as at the end of July and beginning of August. It is fourteen months in completing its growth; but the stools produce a second crop, like the ratoons of the West Indies, which ripen in twelve months.

Maracabo, Cuttaycabo.—These two are very small, seldom exceeding half an inch in diameter; yet in some districts of Mysore, as about Colar, the last-named is the variety usually cultivated; but this arises from its requiring less water than the larger varieties.

The best varieties are those introduced from the islands of Otaheite and Bourbon. Hindostan is indebted for their introduction to Captain Sleeman, who brought them hither from the Mauritius in 1827. He committed them to Dr. Wallich, under whose care, at the Botanic Garden, they have flourished, and been the source from whence the benefit has been generally diffused. Their superiority over those which have been usually cultivated by the natives has been completely established. The largest of the Hindostan canes, ripe and trimmed, ready for the mill, has never been found to exceed five pounds; but it is not uncommon for an Otaheite cane,* under similar circumstances, to weigh seven pounds. The extra weight arises proportionately from an increased secretion of superior sap. The sugar is more abundant, granulates more readily, and has less scum. Other

* Many are of opinion, founded on their experience, that although the juice of this cane is larger in quantity, yet that it contains less sugar. There is some sense in the reason they assign, which is, that in the Mauritius and elsewhere, it has the full time of twelve or fourteen months allowed for its coming to maturity—whereas the agriculture of India, and especially in Bengal, only allows it eight or nine months, which, though ample to mature the smaller country canes, is not sufficient for the Otaheite.

superior qualities are, that the canes ripen earlier, and are less injured by the occurrence of protracted dry weather.

Of the history of the sugar-cane a popular tradition obtains among the natives, that, in very ancient times, a vessel belonging to their country chanced by accident to leave one of her crew, under a desperate fit of sickness, at a desert island, at a considerable distance in the Eastern seas, and that, returning by the same route, curiosity prompted them to inquire after the fate of their companion, when, to their utter astonishment, the man presented himself to their view, completely recovered from his sickness, and even in a state of more than common health. With anxiety they inquired for the physic he had so successfully applied, and were conducted by him to the sugar-cane, on which he acquainted them he had solely subsisted from the time of their departure. Attracted by such powerful recommendation, every care and attention was bestowed, we may suppose, to convey such an invaluable acquisition to their own lands, where the soil and climate have mutually since contributed to its present prosperity.

The Ryots consider the sugar-cane, and also the betel plant, in a sacred and superior light; they even place it among the number of their deutohs. The first fifteen days of Koar (or September), termed *Peetereputch*, are devoted by the Hindoos to religious ceremonies and offerings on account of their deceased parents, relations and friends. Such of them as have been bereft of their parents refrain from every indulgence during the said period, as being the season of mourning and mortification; and as they deem the performance of the higher rites of their religion (such as making offerings of sweetmeats, cloths, jewels, &c., in the temples of their several deities, and also the sacrifices denominated *Howm-jugg*, &c.) a pleasure and enjoyment, these are likewise carefully avoided.

The sacred appellation of the cane among the Ryots is *Nag' bele*, and hence, for the reasons above stated, the immediate owners of the cane plantation sedulously refrain from repairing to or even beholding them during the continuance of the *Peetereputch*. On the 26th of Cartick (or October), termed by the Ryots *Deuthan*, they proceed to the fields, and having sacrificed to *Nag' bele*, a few canes are afterward cut and distributed to the Brahmins. Until these ceremonies are performed, according to the rules of established usage and custom, no persuasion or inducement can prevail upon any of them to taste the cane, or to make any use whatever of it.

On the 25th of Jeyte (or May), termed the *Desharah*, another usage is strictly adhered to. As it is usual with the Ryots to reserve a certain portion of the canes of the preceding year, to serve as plants for their new cultivation, it very frequently happens that inconsiderable portions of cane remain unexpended after the said cultivation has been brought to a conclusion. Wherever this happens to be the case, the proprietor repairs to the spot, and having sacrificed to *Nag' bele*, as before stated, he immediately sets fire to the whole, and is exceedingly careful to have the operation executed in as complete and efficacious a manner as possible.

The cause of this extraordinary practice proceeds from a superstitious notion of a very singular kind. The act is committed from an apprehension that if the old canes were allowed to remain in the

ground beyond the 25th of Jeyte, they would in all probability produce flowers and seed, for the appearance of these flowers they consider as one of the greatest misfortunes that can befall them.

They unanimously assert, that if the proprietor of a plantation happens to view even a single cane therein which is in flower, the greatest calamities will befall himself, his parents, his children, and his property; in short, that death will sweep away most of the members, or indeed the whole of his family, within a short period of time after his having seen the cane thus in flower. If the proprietor's servant happens to see the flower, and immediately pulls it from the stalk, buries it in the earth, and never reveals the circumstance to his master, in this case they believe that it will not be productive of any evil consequences. But should the matter reach the proprietor's knowledge, the calamities before stated must, according to their ideas, infallibly happen.

"I am informed," said a late resident at Benares, "that there is a species of cane called Kutharee, cultivated in or near the district of Churnparun, and upon the banks of the Gagra, which is not cut down by the cultivators thereof until the canes are in flower. Having mentioned this circumstance to some of the Ryots of Benares, to convince them of the absurdity of ascribing the common misfortunes, incident to human existence and exertion, to the evil influence of a cane-flower, they only replied that the Kutharee cane might perhaps be an exception to what they had stated as the sum of their faith on this head; such faith being, however, invariably corroborated by the result of long observation and experience in this Zemindary.

Soil.—The soil best suiting the sugar-cane is aluminous rather than the contrary, tenacious without being heavy, readily allowing excessive moisture to drain away, yet not light. One gentleman, Mr. Ballard, has endeavored to make this point clear by describing the most favorable soils about Gazepore as "*light clays*," called there *Mootéarée* or *doansa*, according as there is more or less sand in their composition.

Mr. Piddington seems to think that calcareous matter, and iron in the state of *peroxide*, are essential to be present in a soil for the production of a superior sugar-cane. There can be no doubt that the calcareous matter is necessary, but experience is opposed to his opinion relative to the peroxide.

The soil preferred at Radnagore is there distinguished as the soil of "two qualities," being a mixture of rich clay and sand, and which Mr. Touchet believed to be known in England as a light brick mould. In other districts this soil is described as *Dobrussah*, or two-juiced.

About Rungpore, Dinajpoor, and other places where the ground is low, they raise the beds where the cane is to be planted, four or five feet above the level of the land adjacent.

The experience of Dr. Roxburgh agrees with the preceding statements. He says, "The soil that suits the cane best in this climate is a rich vegetable earth, which on exposure to the air readily crumbles down into very fine mould. It is also necessary for it to be of such a level as allows of its being watered from the river by simply draining it up (which almost the whole of the land adjoining to this river,

the Godavery, admits of), and yet so high as to be easily drained during heavy rains. Such a soil, and in such a situation, having been well meliorated by various crops of leguminous plants or fallowing for two or three years, is slightly manured, or has had for some time cattle pent upon it. A favorite manure for the cane with the Hindoo farmer is the rotten straw of green and black pessaloo (*Phaseolus Mungo mar*)."

Many accordant opinions might be added to the preceding, but it seems only necessary to observe farther, that "the sugar-cane requires a soil sufficiently elevated to be entirely free from inundation, but not so high as to be deprived of moisture, or as to encourage the production of white ants (*termes*)."

The sugar-cane is an exhausting crop, and it is seldom cultivated by the Ryot more frequently than once in three or four years on the same land. During the intermediate period, such plants are grown as are found to improve the soil, of which, says Dr. Tennant, the Indian farmer is a perfect judge. They find the leguminous tribe the best for the purpose. Such long intervals of repose from the cane would not be requisite if a better system of manuring was adopted.

Mr. J. Prinsep has recorded the following analysis of three soils distinguished for producing sugar. They were all a soft, fine-grained alluvium, without pebbles. No. 1 was from a village called Mothe, on the Sarjee, about ten miles north of the Ganges at Buxar, and the others from the south bank of the Ganges, near the same place. There is a substratum of *kunkar* throughout the whole of that part of the country, and to some mixture of this earth with the surface soil, the fertility of the latter is ascribed:

Hygrometric moisture, on drying at 212 deg.....	2.5	2.1	3.6
Carbonaceous and vegetable matter, on calcination....	1.8	2.1	4.0
Carbonate of lime (No. 3 effervesced).....	1.6	0.6	3.9
Alkaline salt, soluble.....	1.0	1.1	0.3
Silex and alumina.....	94.1	94.1	88.2
	100.0	100.0	100.0

The earths unfortunately were not separated. Mr. Prinsep says the first two were chiefly of sand, and the third somewhat argillaceous. The first two required irrigation, but the other was sufficiently retentive of moisture to render it unnecessary.

Manures.—The sugar-cane being one of the most valued crops of the Ryot, he always devotes to it a portion of the fertilizing matters he has at command, though in every instance this is too small.

In the Rajahmundry district, previously to planting, the soil is slightly manured, either by having cattle folded upon it, or by a light covering of the rotten straw of the green and black pessaloo, which is here a favorite fertilizer. In some parts of Mysore the mud from the bottom of tanks is employed, and this practice is more generally adopted in other places. Thus the fields being divided by deep ditches in Dinajpore, the mud from which is enriched by the remains of decayed aquatic plants and animals, forms an excellent manure for the sugar-cane, and of this the Ryots make use, spreading it over the surface before the plowing is commenced; and when that operation

is completed, the soil is farther fertilized by a dressing of oilcake and ashes.

Crushed bones would unquestionably be of the greatest benefit if applied to the sugar-cane crop. Not only their animal matter would serve as food for the plants, but the phosphate of lime of the bones is one of the chief saline constituents of the sugar-cane.

Salt is another valuable manure for this crop. Dr. Nugent, in a Report made to the Agricultural Society of Antigua, observes that salt has been found a valuable auxiliary in cultivating the sugar-cane. Many trials of it, he says, have been made during successive seasons, applied generally to the extent of about nine or ten bushels per acre. It destroys grubs and other insects, and gives the canes an increased vigor and ability to resist drought. It is a singular remark of the intelligent traveler, M. de Humboldt, while speaking of the practice adopted in the Missions of the Orinoco, when a cocoa-nut plantation is made, of throwing a certain quantity of salt into the hole which receives the nut, that of all the plants cultivated by man there are only the sugar-cane, the plantain, the mamee, and the Avocada pear, which endure equally irrigation with fresh and salt water.

In the West Indies, when the cane is affected by what is called there the *blast*, which is a withering or drying up of the plants, an unfailing remedy is found to be watering them with an infusion of dung in salt water.

Preparation of Soil.—In the Rajahmundry district, during the months of April and May, the ground is frequently plowed, until brought into a very fine tilth. About the end of May, or beginning of June, the rains usually commence, and the canes are then to be planted. If the rains do not set in so early, the land is flooded artificially, and when converted into a soft mud, whether by the rain or by flooding, the canes are planted.

In Mysore the ground is watered for three days, and then, after drying for the same period, plowing commences, this operation being repeated five times during the following eight days. The clods during this time are broken small by an instrument called *col kudali*. The field is then manured and plowed a sixth time. After fifteen days it is plowed again, twice in the course of one or two days. After a lapse of eight days it is plowed a ninth time. Altogether these operations occupy about forty-four days.

For planting, which is done in six days, an implement called *yella kudali* is employed.

In Dinajpore, "the field, from about the middle of October until about the 10th of January, receives ten or twelve double plowings, and after each is smoothed with the *moyi*. During the last three months of this time it is manured with cow-dung, and mud from ponds and ditches. On this account, the land fit for sugar-cane is generally divided into fields by wide ditches, into which much mud is washed by the rain, and is again thrown on the fields when the country dries, and leaves it enriched by innumerable aquatic vegetables and animals that have died as the water left them. When the plowing has been completed, the field is manured with ashes and oilcake."

About Malda, "the land is first plowed in the month of Cartick, length and breadth ways, and harrowed in like manner; four or five

days after, it is again plowed and harrowed, as before, twice. In the month of Aghun, the whole land is covered with fresh earth, again twice plowed, and harrowed in different directions, and then manured with dung. Fifteen or twenty days afterward it is to be twice plowed, as before; eight or ten days after which, it is to be slightly manured with dung, and the refuse of oil, mixed together; then twice plowed and harrowed in different directions, so that the clods of earth brought be well mixed together with the land. This preparation continues until the 20th or 25th of the month Pows."

In the vicinity of Dacca, during "Cautic or Augun (October, November), the Ryots begin to prepare their ground. They first dig a trench round their fields, and raise a mound of about three feet in height. If the ground to be cultivated be waste, about nine inches of the surface are taken off, and thrown without the inclosure. The ground is plowed to the depth of nine inches more. The clods are broken, and the earth made fine. In Maug or Faugun (January, February), the sugar-cane is planted; a month afterward earth is raised about the plants; after another month this is repeated. The crop is cut in Poous and Maug (December, January). If the ground be not waste, but cultivated, the surface is not taken off. After cutting the crop, it is not usual again to grow sugar-cane on the same ground for eighteen months, on account of the indifferent produce afforded by a more early planting."

In the Zillah, North Moorabad, the land is broken up at the end of June. After the rains have ceased it is manured, and has eight or ten plowings. This clears it of weeds. In February it is again manured and plowed four or five times, and just before the sets are planted, some dung, four cart-loads to each cutcha beegah of low land, and five cart-loads if high land, are added. The land is well rolled after the last four plowings, and again after the cuttings are set.

About Benares and the neighbouring districts, Mr. Haines says, that owing to the hot winds which prevail "from March until the setting in of the annual rains in June or July, the lands remain fallow till that period. In the mean time, those fields that are selected for sugar-cane are partially manured by throwing upon them all manner of rubbish they can collect, and by herding their buffaloes and cattle upon them at night, though most of the manure from the latter source is again collected and dried for fuel.

"When the annual rains have fairly set in, and the Assarree crops sown (in some instances I have seen an Assarree crop taken from the lands intended for sugar-cane), they commence plowing the cane lands, and continue to do so four or five times monthly (as they consider the greater number of times the fields are turned up at this period of the season, the better the crop of cane will be) till the end of October, continuing to throw on the little manure they can collect.

"Toward the end of October, and in November, their plows are much engaged in sowing their winter (or rubbee) crops of wheat, barley, grain, &c.; and at this period they make arrangements with the shepherds who have large flocks of sheep, to fold them upon the fields at night, for which they pay so much per beegah in grain.

"During the latter part of November, and early in December, the

fields are again plowed well, and all grass, weeds, &c., removed with the hoe; then the surface of the field is made as smooth as possible by putting the hengah (a piece of wood eight to ten feet in length, and five or six inches in breadth, and three or four inches in thickness, drawn by two pairs of bullocks, and the man standing upon the wood to give it weight) over several times for three or four days in succession. This makes the surface of the field very even, and somewhat hard, which prevents the sun and dry west wind from abstracting the moisture, which is of great importance at this period of the season, for, should there be no rain, there would not be sufficient moisture at the time of planting the cane to cause vegetation.

"In this state the lands remain till the time of planting the cane cuttings, which is generally the 1st to the 15th February; but should there have been a fall of rain in the mean time, or excess of moisture appear, the field is again plowed, and the hengah put over as before.

"A day or two previous to planting the cane, the field is plowed and the hengah lightly put over."

Sets.—When the canes are cut at harvest time, twelve or eighteen inches of their tops are usually taken off, and stored, to be employed for sets. Each top has several joints, from each of which a shoot rises, but seldom more than one or two arrive at a proper growth.

When first cut from the stem, the tops intended for plants are tied in bundles of forty or fifty each, and are carefully kept moist. In a few days they put forth new leaves: they are then cleared of the old leaves, and separately dipped into a mixture of cow-dung, pressed mustard-seed, and water. A dry spot is prepared, and rich loose mould and a small quantity of pressed mustard-seed; the plants are separately placed therein, a small quantity of earth strewn among them, and then covered with leaves and grass, to preserve them from heat. Ten or twelve days afterward they are planted in the fields.

In Burdwan, the tops, before they are planted, are cut into pieces from four to six inches long, so that there are not less than two nor more than four knots in each. Two or three of these plants are put together when planted, and a beegah requires from 7,500 to 10,240 plants.

In Rungpore and Dinajpore, about 9,000 plants are required for a beegah, each being about a foot in length.

In Beerbhoom, 3,000 plants are said to be requisite for a beegah, each plant being about fifteen inches long.

Near Calcutta, from 3,000 to 8,000 plants are required for a beegah, according to the goodness of the soil, the worst soil requiring most plants.

In Mysore an acre contains 2,420 stools, and yields about 11,000 ripe canes.

Near Rajahmundry, about 400 cuttings are planted on a cutcha beegah (one-eighth of an acre). In Zilla North Mooradabad, 4,200 sets, each eight inches long, are inserted upon each cutcha beegah of low land, and 5,250 upon high land.

In the district of Gollagore the Ryots cut a ripe cane into several pieces, preserving two or three joints to each, and put them into a small bed of rich mould and dung, and mustard-seed from which the

oil has been expressed. At Radnagore, when the time of cutting the canes arrives, their tops are taken off, and these are placed upright in a bed of mud for thirty or forty days, and covered with leaves or straw. The leaves are then stripped from them, and they are cut into pieces, not having less than two, nor more than four joints each. These sets are kept for ten or fifteen days in a bed prepared for them, from whence they are taken and planted in rows two or three together, eighteen inches or two feet intervening between each stool. The number of sets planted varies from 7,500 to 10,240 per beegah.

Planting.—The time and mode of planting vary. In the Rajahmundry Circar, Dr. Roxburgh says, that “during the months of April and May the land is repeatedly plowed with the common Hindoo plow, which soon brings this loose rich soil (speaking of the Delta of the Godavery) into very excellent order. About the end of May and beginning of June, the rains generally set in, in frequent heavy showers. Now is the time to plant the cane; but should the rains hold back, the prepared field is watered, flooded from the river, and, while perfectly wet, like soft mud, whether from the rain or the river, the cane is planted.

“The method is most simple. Laborers with baskets of the cuttings, of one or two joints each, arrange themselves along one side of the field. They walk side by side, in as straight a line as their eye and judgment enable them, dropping the sets at the distance of about eighteen inches asunder in the rows, and about four feet row from row. Other laborers follow, and with the foot press the set about two inches into the soft, mud-like soil, which, with a sweep or two with the sole of the foot, they most easily and readily cover.”

About Malda, in the month of Maug (January, February), the land is to be twice plowed, and harrowed repeatedly, length and breadth ways; after which it is furrowed, in furrows half a cubit apart, in which the plants are to be set at about four fingers' distance from each other, when the furrows are filled up with the land that lay upon its ridges. The plants being thus set, the land is then harrowed twice in different directions; fifteen or twenty days afterward the cane begins to grow, when the weeds which appear with it must be taken up; ten or twelve days after this the weeds will again appear. They must again be taken up, and the earth at the roots of the canes be removed, when all the plants which have grown will appear.

At Ghazepore the rains set in at the beginning of March, and planting then commences.

Near Calcutta the planting takes place in May and June. In Dinajpoor and Rungpore the planting time is February.

About Commercolly it is performed in January. The field is divided into beds six cubits broad, separated from each other by small trenches fourteen inches wide and eight inches deep. In every second trench are small wells, about two feet deep. The irrigating water flowing along the trenches fills the wells, and is taken thence and applied to the canes by hand.

Each bed has five rows of canes. The sets are planted in holes about six inches in diameter and three deep; two sets, each having three joints, are laid horizontally in every hole covered slightly with earth, and over this is a little dung.

When the canes are planted in the spring, the trenches must be filled with water, and some poured into every hole. At the other season of planting the trenches are full, it being rainy weather; but even then the sets must be watered for the first month.

Mr. Haines says, that in Mirzapore and the neighboring districts, "in planting the cane they commence a furrow round the field, in which they drop the cuttings. The second furrow is left empty; cuttings again in the third; so they continue dropping cuttings in every second furrow till the whole field is completed, finishing in the centre of the field. The field remains in this state till the second or third day, when for two or three days in succession it is made even and hard upon the surface with the hengah, as before stated."

Mr. Vaupell, in describing the most successful mode of cultivating the Mauritius sugar-cane at Bombay, says, that "after the ground is leveled with the small plow, called 'paur,' in the manner of the cultivators, pits of two feet in diameter and two feet in depth should be dug throughout the field at the distance of five feet apart, and filled with manure and soil to about three inches of the surface. Set in these pits your canes, cut in pieces about a foot and a half long, laying them down in a triangular form. Keep as much of the eyes or shoots of the cane uppermost as you can; then cover them with manure and soil. Beds should next be formed to retain water, having four pits in each bed, leaving passages for watering them. The cuttings should be watered every third day during hot weather, and the field should always be kept in a moist state."

About Benares, the sets require, after planting, from four to six waterings, until the rains commence, and as many hoeings to loosen the surface, which becomes caked after every watering. The moister nature of the soil renders these operations generally unnecessary in Bengal.

After-culture.—In Mysore the surface of the earth in the hollows in which the sets are planted is stirred with a stick as soon as the shoots appear, and a little dung is added. Next month the daily water is continued, and then the whole field dug over with the hoe, a cavity being made round each stool, and a little dung added. In the third month water is given every second day; at its close, if the canes are luxuriant, the ground is again dug; but if weakly, the watering is continued during the fourth month before the digging is given. At this time the earth is drawn up about the canes, so as to leave the hollows between the rows at right angles with the trenches. No more water is given to the plants, but the trenches between the beds are kept full for three days. It is then left off for a week, and if rain occurs no farther water is requisite; but if the weather is dry, water is admitted once a week during the next month. The digging is then repeated, and the earth leveled with the hand about the stools.

The stems of each stool are ten to twelve in number, which are reduced to five or six, by the most weakly of them being now removed. The healthy canes are to be tied with one of their own leaves, two or three together, to check their spreading; and this binding is repeated as required by their increased growth.

In the absence of rain, the trenches are filled with water once a fortnight.

When the *Puttaputti* is to be kept for a second crop, the dry leaves cut off in the crop season are burnt upon the field, and this is dug over, the trenches filled with water, and during six weeks the plants watered once in every six or eight days (unless rain falls), and the digging repeated three times, dung being added at each digging. The after-culture is the same as for the first crop.

In the Upper Provinces, Dr. Tennant says, if moderate showers occur after planting, nothing more is done until the shoots from the sets have attained a height of two or three inches. The soil immediately around them is then loosened with a small weeding-iron, something like a chisel; but if the season should prove dry, the field is occasionally watered; the weeding is also continued, and the soil occasionally loosened about the plants.

In August small trenches are cut through the field, with small intervals between them, for the purpose of draining off the water, if the season is too wet. This is very requisite; for if the canes are now supplied with too much moisture, the juices are rendered watery and unprofitable. If the season happens to be dry, the same dikes serve to conduct the irrigating water through the field, and to carry off what does not soak into the earth in a few hours. Stagnant water they consider very injurious to the cane, and that on the drains being well-contrived depends in a great measure the future hopes of profit. Immediately after the field is trenched, the canes are propped. They are now about three feet high, and each set has produced from three to six canes. The lower leaves of each are first carefully wrapt up around it, so as to cover it completely in every part; a small strong bamboo, eight or ten feet long, is then inserted firmly in the middle of each stool, and the canes tied to it. This secures them in an erect position, and facilitates the circulation of the air.

Hoeing cannot be repeated too frequently. This is demonstrated by the practice of the most successful cultivators. In Zilla, N. Mooradabad, in April, about six weeks after planting, the earth on each side of the cane-rows is loosened by a sharp-pointed hoe, shaped somewhat like a bricklayer's trowel. This is repeated six times before the field is laid out in beds and channels for irrigation. There, likewise, if the season is unusually dry, the fields in the low ground are watered in May and June. This supposes there are either nullahs, or ancient pukka wells, otherwise the canes are allowed to take their chance, for the cost of making a well on the uplands is from ten to twenty rupees—an expense too heavy for an individual cultivator, and not many would dig in partnership, for they would fight for the water.

In the vicinity of Benares, as the canes advance in growth, they continue to wrap the leaves as they begin to wither up round the advancing stem, and to tie this to the bamboo higher up. If the weather continue wet, the trenches are carefully kept open; and, on the other hand, if dry weather occurs, water is occasionally supplied. Hoeing is also performed every five or six weeks. Wrapping the leaves around the cane is found to prevent them cracking by the heat of the sun, and hinders their throwing out lateral branches.

In January and February the canes are ready for cutting. The average height of the cane is about nine feet, foliage included, and the naked cane from one inch to one inch and a quarter in diameter.

Near Maduna, the hand-watering is facilitated by cutting a small trench down the centre of each bed. The beds are there a cubit wide, but only four rows of canes are planted in each.

It is deserving of notice, that the eastern and north-eastern parts of Bengal are more subject to rain at every season of the year, but especially in the hot months, than the western ; which accounts for the lands being prepared and the plants set so much earlier in Rungpore than in Beerbhoom. This latter country has also a drier soil generally ; for this reason, so much is said in the report from thence of the necessity of watering.

The Benares country is also drier than Bengal, therefore more waterings are requisite.

At Malda, "ten or fifteen days after the earth has been removed from the roots of the canes and the plants have appeared, the land is to be slightly manured, well cleared of weeds, and the earth that was removed again laid about the canes ; after which, ten or fifteen days, it must be well weeded, and again twenty or twenty-five days afterward. This mode of cultivation it is necessary to follow until the month of Joystee. The land must be plowed and manured between the rows of canes in the month of Assaar ; after which, fifteen or twenty days, the canes are to be tied two or three together with the leaves, the earth about them well cleaned, and the earth that was plowed up laid about the roots of the canes something raised. In the month of Saubun, twenty or twenty-five days from the preceding operation, the canes must be again tied as before, and again ten or fifteen days afterward ; which done, nine or ten clumps are then to be tied together. This care to be taken until the end of the month Saubun ; after which, in the month of Bhaddur, they must be tied with the cane-leaves as before, and again in Assen, when the cultivation is completed."

In the Rajahmundry Circar, on the Delta of the Godavery, Dr. Roxburgh states, "that nothing more is done after the cane is planted, if the weather be moderately showery, till the young shoots are some two or three inches high ; the earth is then loosened for a few inches round them with a small weeding iron, something like a carpenter's chisel. Should the season prove dry, the field is occasionally watered from the river, continuing to weed and keep the ground loose around the stools. In August, two or three months from the time of planting, small trenches are cut through the field at short distances, and so contrived as to serve to drain off the water, should the season prove too wet for the canes, which is often the case, and would render their juices weak and unprofitable. The farmer, therefore, never fails to have his field plentifully and judiciously intersected with drains while the cane is small, and before the usual time for the violent rains. Should the season prove too dry, these trenches serve to conduct the water from the river the more readily through the field, and also to drain off what does not soak into the earth in the course of a few hours ; for they say if water is permitted to remain in the field for a greater length of time, the

cane would suffer by it, so that they reckon these drains indispensable necessary, and upon their being well contrived depends in a great measure their future hopes of profit. Immediately after the field is trenched, the canes are all propped: this is an operation I do not remember to have seen mentioned by any writer on this subject, and is probably peculiar to these parts. It is done as follows:

"The canes are now about three feet high, and generally from three to six from each set that has taken root from what we may call the stool. The lower leaves of each cane are first carefully wrapt up around it, so as to cover it completely in every part; a small strong bamboo (or two) eight or ten feet long, is then stuck into the earth in the middle of each stool, and the canes thereof tied to it. This secures them in an erect position, and gives the air free access round every part. As the canes advance in size, they continue wrapping them round with the lower leaves as they begin to wither, and to tie them to the prop bamboos higher up; during which time, if the weather is wet, they keep the drains open, and if a drought prevails they water them occasionally from the river, cleaning and loosening the ground every five or six weeks. Tying the leaves so carefully round every part of the canes, they say, prevents them from cracking or splitting by the heat of the sun, helps to render the juice richer, and prevents their branching out round the sides. It is certain you never see a branchy cane here."

In Dinajpoor, in about a month after planting, "the young plants are two or three inches high; the earth is then raised from the cuttings by means of a spade, and the dry leaves by which they are surrounded are removed. For a day or two they remain exposed to the air, and are then manured with ashes and oilcake, and covered with earth. Weeds must be removed as they spring; and when the plants are about a cubit and a half high, the field must be plowed. When they have grown a cubit higher, which is between the 13th of June and the 14th of July, they are tied together in bundles of three or four, by wrapping them round with their own leaves. This is done partly to prevent them from being laid down by the wind, and partly to prevent them from being eaten by jackals. During the next month three or four of these bunches are tied together; and about the end of September, when the canes grow rank, they are supported by bamboo stakes driven in the ground. They are cut between the middle of December and the end of March."

If the canes grow too vigorously, developing a superabundance of leaves, it is a good practice to remove those which are decayed, that the stems may be exposed fully to the sun. In the West Indies, this is called *trashing* the canes. It requires discretion; for in dry soils or seasons, or if the leaves are removed before sufficiently dead, more injury than benefit will be occasioned.

Harvesting.—The season in which the canes become ripe in various districts has already been noticed when considering their cultivation. In addition I may state, that in the Rajahmundry Circar, about the mouth of the Godavery, Dr. Roxburgh states, "that in January and February the canes begin to be ready to cut, which is about nine months from the time of planting. This operation is the same as in other sugar countries—of course I need not describe it. Their

height, when standing on the field, will be from eight to ten feet (foliage included), and the naked cane from an inch to an inch and a quarter in diameter."

In Malda, the canes are cut in January and February. In N. Mooradabad, upon the low land, the canes are ripe in October, and upon the high lands a month later. The fitness of the cane for cutting may be ascertained by making an incision across the cane, and observing the internal grain. If it is soft and moist, like a turnip, it is not yet ripe; but if the face of the cut is dry, and white particles appear, it is fit for harvesting.

Injuries.—1. *A wet season*, either during the very early or in the concluding period of the cane's vegetation, is one of the worst causes of injury. In such a season, the absence of the usual intensity of light and heat causes the sap to be very materially deficient in saccharine matter. But on the other hand,

2. *A very dry season*, immediately after the sets are planted, though the want of rain may in some degree be supplied by artificial means, yet the produce under such circumstances proves but indifferent. These inconveniences are of a general nature, and irremediable.

3. *Animals.*—Not only the incursions of domesticated animals, but in some districts of the wild elephant, buffalo, and hog, are frequent sources of injury. Almost every plantation is liable, also, to the attack of the jackal.

4. *White Ants.*—The sets of the sugar-cane have to be carefully watched, to preserve them from the white ant (*Termites fatale*), to attacks from which they are liable until they have begun to shoot. To prevent this injury, the following mixture has been recommended :

Asafoetida (hing), 8 chittacks.
Mustard-seed cake (sarsum ki khalli), 8 seers.
Putrid fish, 4 seers.
Bruised butch root, 2 seers; or muddur, 2 seers.

Mix the above together in a large vessel, with water sufficient to make them into the thickness of curds; then steep each slip of cane in it for half an hour before planting; and, lastly, water the lines three times previous to setting the cane, by irrigating the water-course with water mixed up with bruised butch root, or mudder if the former be not procurable.*

A very effectual mode of destroying the white ant is, by mixing a small quantity of arsenic with a few ounces of burned bread, pulverized flour or oatmeal, moistened with molasses, and placing pieces of the dough thus made, each about the size of a turkey's egg, on a flat board, and covered over with a wooden bowl, in several parts of the plantation. The ants soon take possession of these, and the poison has a continuous effect, for the ants which die are eaten by those which succeed them. They are said to be driven from a soil

* That the above application would be beneficial, is rendered still more worthy of credit from the following experience:—In the Dhoon, the white ant is a most formidable enemy to the sugar planter, owing to the destruction it causes to the sets when first planted. Mr. G. H. Smith says, that there is a wood very common there, called by the natives *Butch*, through which, they say, if the irrigating waters are passed in its progress to the beds, the white ants are driven away.

by frequently hoeing it. They are found to prevail most upon newly-broken-up lands.

In Central India, the penetration of the white ants into the interior of the sets, and the consequent destruction of the latter, is prevented by dipping each end into buttermilk, asafetida, and powdered mustard-seed, mixed into a thick compound.

5. *Storms*.—Unless they are very violent, Dr. Roxburgh observes, “they do no great harm, because the canes are propped. However, if they are once laid down, which sometimes happens, they become branchy and thin, yielding a poor, watery juice.”

6. *The Worm* “is another evil, which generally visits them every few years. A beetle deposits its eggs in the young canes; the caterpillars of these remain in the cane, living on its medullary parts till they are ready to be metamorphosed into the chrysalis state. Sometimes this evil is so great as to injure a sixth or an eighth part of the field; but, what is worse, the disease is commonly general when it happens—few fields escaping.”

7. *The Flowering* “is the last accident they reckon upon, although it scarce deserves the name, for it rarely happens, and never but to a very small proportion of some few fields. Those canes that flower have very little juice left, and it is by no means so sweet as that of the rest.”

COTTON.

The cotton plants belong to the *Monadelphia Dodecandria* class and order of Linnæus, and are distinguished in botany by the generic name of *Gossypium*. They may be divided into three groups—1st. The herbaceous; 2d. The shrubby; and 3d. The arborescent.

1. The herbaceous, is a single species of *Gossypium herbaceum* of Willdenow and Roxburgh, although there are many varieties marked by only slight differences in the eye of the botanist, but of considerable importance in a commercial point of view.

This species is biennial; it is very generally cultivated in India, as well as in North America, China, and elsewhere. Its height varies between six and two feet; leaves palmate, five-lobed, hoary, dark green, and brown-veined; lobes sub-lanceolate; flowers pale yellow, five-petaled; seed-pod or capsule irregularly triangular, ovate, pointed, and three-celled: not longer than a filbert, brown when ripe, and bursting, exposes a globe of cotton, white or yellowish, in three locks, enveloping and adhering strongly to the seeds, which resemble those of the grape in form, but are much larger; stipules falcate-lanceolate; leaves of outer calyx dentate. This must not be confounded with the *Gossypium herbaceum* of Pluck. In Hindostan it is known by various names; it is karpassee in Sanscrit; rewee in Hindostanee; kapass in Bengalee; pati-chitoo in Telinga; upum punthee and upum pirati in Canara; kootu in Arabic; paratti in Malabar; banga in Central India.

Dr. Roxburgh thought that the cotton from which the *Dacca* muslins are made was produced from a variety of this species, but later information and research certainly raises a legitimate doubt upon the point. At all events this species is in general cultivation by the natives of Hindostan, and the distinguished botanist just named con-

cluded that there are three principal varieties—the Dacca, the Berar, and the China.

The Dacca variety differs from the common *Gossypium herbaceum* in the following respects:

1st. In the plant being more erect, with fewer branches, and the lobes of the leaves more pointed.

2d. In the whole plant being tinged of a reddish color, even the petioles, and nerves of the leaves, and being less pubescent.

3d. In having the peduncles which support the flowers longer, and the exterior margins of the petals tinged with red.

4th. In the staple of the cotton being longer, much finer, and softer.

These are the most obvious points of difference, but whether they will prove permanent I cannot at present say. The most intelligent people of that country (Dacca) think the great difference lies in the spinning, and allow little for the influence of soil.

Berar cotton I call the second variety; it is in cultivation over the Berar country, and is from thence imported into the Circars, or northern provinces, by Sada, Balawansa, &c., to Yourma-goodum, in the Musulipatam district. With this cotton the fine Madras, more properly northern Circars, "long-cloth" is made. It differs from the two before-mentioned sorts in the following respects—1st. In growing to a greater size, in being more permanent, or living longer, and in having smooth and straight branches; 2d. In having the leaflets of the exterior calyx more deeply divided, and the wool of a finer quality than in the first variety.

China cotton is cultivated in the country whence it derives its name, and its wool is reckoned 25 per cent. better than that of Surat. It differs from the former sorts—1st. In being much smaller, with but very few short weak branches; 2d. In being, so far as my experience goes, annual; 3d. In having the leaflets of the exterior calyx entire, or nearly so.

In South Behar there are four varieties of this species cultivated: 1st. *Rehdhea*, the finest is sown about the autumn equinox, and of this the Dacca muslins are said to have been made in years gone by, but now none is exported thither; 2d. *Hewlee*, the next best, is sown in June; 3d. *Jeitowa*, is sown at the same period; 4th. *Kokety*, is yellowish; it makes the best fine thread, and is cultivated chiefly to the north of Tirhoot.

The Guzerat cotton is the produce of this species. The plants are described as differing from the Bourbon perennial species by never exceeding two or three feet in height, by producing few branches and a smaller number of pods, and by yielding its produce in six months from the time of sowing.

2. The shrubby cottons are—

G. vitifolium, of Willdenow and Roxburgh, vine-leaved cotton, said by some authorities to be a native of Celebes, South America, and the Isle of France; but Dr. Roxburgh considers its place of nativity uncertain. In flower and seed the whole year, but not profitable, because the produce is scanty. Dr. Royle identifies it with *G. Barbadense*, and thinks that the *Sea island cotton* is produced from a variety of this species.

G. hirsutum (Willdenow and Roxburgh), hairy-branched cotton, found in the hottest districts of South America.

G. religiosum, nankeen cotton (Willdenow and Roxburgh), found in Surinam, Hindostan, and elsewhere. Flower, uniformly yellow; allied to *G. hirsutum*, if not merely a variety. Wool, tawny. This is occasionally grown in Burmah, and is called *wa-nee*.

G. latifolium, broad-leaved cotton, a native of the West Indies, and differing but little from *G. vitifolium*.

G. Barbadense (Willdenow and Roxburgh) is the kind cultivated chiefly in Barbadoes. It is known here as the Bourbon cotton (Roxburgh), and is productive for several years.*

There are two sorts cultivated in the Isle of Bourbon:—1st. *Black-seeded*, which is easily separated from the cotton. 2d. *White-seeded*, a whiteness which seems to arise from the ends of the fibres of the cotton remaining adhering to, and requiring to be torn from them with considerable force.

G. Peruvianum, a native of Peru.

G. acuminatum (Roxburgh) is easily distinguished by its superior size, and large black seeds adhering firmly to each other, but easily separating from the wool; said to be a native of the mountains to the north and west of Bengal. Dr. Wallich describes a specimen brought from the Nussereabad, where it seems to be common. He says that it is very productive, and that the cotton is readily and completely separable, milk-white, long staple; and although that grown in the Botanic Garden was harsh and woolly, yet the variety seems improvable by culture, because the specimen from Nussereabad was soft and silky.

It appears to me that this variety is specifically the same as the *Brazil* or *kidney cotton-tree* recommended to notice by Mr. Rundell in 1819. He describes it as growing to the height of ten or twelve feet; it produces at least six hundred large pods, each containing from six to ten conglomerated seeds, enveloped in very fine and valuable wool. It thrives well on the margin of water; lasts about seven years; requires pruning occasionally of its dead branches, &c.; and, during very hot weather, should be watered at least twice a week. An acre will contain about five hundred trees. Two hundred and thirty pods usually weigh one pound, and yield from four to five ounces of clean cotton.

If this be the *Pernambuco cotton-tree* (and that town is, we know, in Brazil), it has an additional claim to attention for cultivation in the interior districts of Hindostan, inasmuch as it is found to improve in quality the farther it recedes from the sea.

Plants of this species differ from the herbaceous not only in stature, but in the form and size of their pods, which are oval and larger. In addition to these distinctions they are longer-lived, for, although in the most temperate climates, capable of growing cotton, they frequently become annuals, yet in the most torrid localities they are perennial; while in the West Indies they are either biennial or triennial; and in Egypt, &c., live for six or even ten years.

* Mr. Hughes, who has cultivated successfully the Bourbon cotton near Tinivelly, says the plant will last a great number of years without falling off in productiveness, if properly managed.

The Persian cotton-shrub on the sea-coast lives for twenty or thirty years, but in the interior it is cultivated as an annual.

The influence of climate and soil upon the plant is evinced in another phenomenon, for Mr. Tucker shows that the color of the seed varies with the soil and situation where the plant is grown. The Sea island cotton has black seeds, but if taken to the back or upland districts the seeds become green, and the staple of the cotton undergoes a great change.

G. obtusifolium (Roxburgh), a native of Ceylon, producing a small quantity of ash-colored wool; not cultivated.

G. micranthum (Cavanilles.)—This was raised in the Paris Garden from seed produced in Persia.

3. The Arboraceous cotton-plant, *Gossypium arboreum* (Willdenow and Roxburgh), grows to a height varying between twelve and twenty feet. It is indigenous to Hindostan, China, Egypt, and some parts of America and Africa. Dr. Roxburgh says it is not cultivated for its wool, but Dr. Royle states that some produced by this species at Sahanapore was pronounced by a competent judge to be of the best description, as both fabric and staple were good. It appears worthy, he adds, of being the subject of farther trials, particularly to ascertain its productiveness; for of the fineness and silky nature of its staple there can be no doubt, as it is employed by the natives for making the finest muslins only. It was cultivated like the common Indian cotton, and gave its produce, in the first year, during October and November, and a second crop in February.

To ascertain which of the species are best suited to the various soils and climates, is a most important consideration for those interested in the introduction of this source of wealth into India, because, however judicious the culture, yet, if it be expended upon a species physically unsuited to the climate, it is labor and time uselessly bestowed. My own inquiries lead me to the conclusion that the *Gossypium acuminatum* is in every respect worthy of more attention than it has yet received. It has the advantage of being indigenous, and, therefore, not liable to the changes and difficulties unavoidably incident to acclimating exotics. It most delights in inland localities, and is consequently capable of more extensive cultivation than those species which affect maritime situations, and being a perennial, its culture is attended with very much less expense. To these highly important qualities are to be added those of being far more productive than the sorts usually cultivated, and of producing, in the most suitable soils and climate of India, a cotton, long, fine, and silky. I have my suspicions that it will be identified with the perennial species noticed lately at Dacca.

The result of the experiments on the Agricultural Society's farm at Akra warranted the committee of management in reporting very strongly in favor of cultivating in India the Upland Georgia variety. This opinion is sustained by subsequent experiments in various other districts, and there can be no doubt, experience shows, that every effort ought to be made to introduce it generally. There are some districts, however, as the sea-coast and its vicinity, where this variety would not flourish; and in these it is most desirable to try

that kind so generally and so advantageously known as the Georgia Sea island cotton.

In mentioning this very superior variety as suitable to maritime districts, I by no means intend to express an opinion that it must be confined to such localities; for although it delights and requires to have common salt within reach of its roots, yet this might be supplied by adding that saline manure to soils situated far from the sea. This is no mere theoretical notion, for I have seen strictly maritime plants grown a hundred miles inland by supplying them judiciously with salt, and among the number I would particularize one of the most intractable, the rock samphire (*Crithmum maritimum*).

The kinds which it has been endeavored to introduce here are:—Sea island cotton, Barbadoes cotton, Brazil cotton, Bourbon cotton (both black and green seeded), and China cotton. To this list may be added a variety called “the vine cotton,” a very superior kind, from *Jamaica*, the extraordinary fault of which was its having a staple *too long*. The seeds were distributed to Captain Jenkins at Gowhatty, and to a gentleman going to Mirzapore, but with what result does not appear.

Mr. Piddington has ingeniously suggested that new varieties could be raised by cross impregnation, as was successfully practised with the pea by the late Mr. Knight. This might, doubtless, be done in some instances, and is worthy of attention, because, although the kinds at present known are sufficiently excellent if correctly cultivated, yet they are not so perfect as to prohibit the hope of improvement.

Much, observes Dr. Royle, may be effected by introducing into India the different species and varieties which are already successfully cultivated in other countries; and here let us not restrict ourselves to too small a number of varieties, because they happen to be those which at present produce the best kinds of cotton. Not contented in America with possessing already the best kinds, they have tried those of other countries to ascertain if there are any among them suited to the peculiarities of their country and climate.

Districts best suited for Cotton.—As some one of the several species of cotton plants may be found in every district of Hindostan, from Cape Comorin to the Himalayan mountains, it is not an untenable position to assume that no portion of the globe, of similar extent, is capable of yielding so large a quantity of this peculiar produce. Indeed, from the earliest ages, cotton has been mentioned as the special production of India.

Now it is a fact in the history of vegetables, to which I remember no exceptions, that where the wild stock flourishes naturally, there the improved varieties succeed best. Examples occur in the English apples and the French pears; for in no country does the crab abound more than in England, nor the wild pear than in France. The inference I would draw from this observation is, that Hindostan ought eminently to excel in the production of cotton, and the comparatively limited experience we have yet had of the results of applying superior knowledge and superior capital to this object, encourages rather than represses the opinion.

That no part of India has a climate unsuited to the production of

superior cotton is demonstrated by the fact that the best samples are produced in Guzerat, at the north-western extremity ; in Behar, the very centre ; and at Tinivelly, on the most southern point.

It appears to me that it is the generally dry silicious nature of the soil of Guzerat, as much as the dryness of its climate, that is so extremely favorable to the growth of the cotton plant. It flourishes there even in the most sterile districts, though necessarily not so luxuriantly as in the more fertile soils.

The same observation applies to the neighboring province of Surat, where good cotton is produced ; but the best in that part of India is grown in the districts of Jambooseer and Ahmood, and, indeed, throughout the Broach Pergunnah. This is stated, by a government report, to be very superior to the Nagpore or any other cotton grown on the eastern side of India.

Mr. Owen Potter, who was extensively employed in shipping cotton from the above districts in 1837, stated some very interesting relative facts in a paper which he submitted to the Manchester Chamber of Commerce. He says that "the chief cotton ports are Surat, Baroche, Tankaria Bunder, Gogo, and Bownugger." All these ports are within a short distance of each other. The extent of cotton cultivation in their vicinity is very great, as will be seen by the following statement of exports :

	1836.	1837.
From Baroche.....	42,000 bales....	20,000 bales.
" Tankaria Bunder.....	20,000 bales....	12,000 bales.
" Surat.....	25,000 bales....	15,000 bales.
" Gogo and Bownugger, including the Dholera cotton.....	60,000 bales....	45,000 bales.
Total.....	147,000 bales....	29,000 bales.

Each bale weighing about 400 lbs.

Nearly the whole of the cotton here mentioned grows within forty miles of the port at which it is shipped.

At Omrawutte cotton is grown at the rate of two pounds for two pence, in moderately favorable seasons ; and did good roads exist, this article could be delivered at Bombay at a handsome remunerating price. It is now carried on the backs of bullocks, and the extra cost thus incurred amounts to a penny a lb. more. This cotton is but little inferior to that grown in Guzerat, which is looked upon as the garden of the western side of India.

In the Deccan the production of superior cotton is not confined to the vicinity of Nagpore, for it can be obtained abundantly much farther to the north, at Calpee, as well as in the districts of Currah, Carah, and Etawah.

Cotton produced in the southern extremity of the Peninsula at Tinivelly and Coimbetore, has been highly approved in the English market.

At Tinivelly, where Mr. Hughes has been long engaged in the cultivation of the Bourbon cotton, that gentleman considers the vicinity of the sea, or situations to which the influence of the sea air extends, are on every account to be preferred. A dry soil, and a dry atmosphere, from March to May, and from July to September, seem almost essential to the good quality of the wool, as well as to the

productiveness of the plant. The freest circulation of air and of light winds, are of the greatest benefit to a perfect culture.

On the other hand Mr. Heath, a gentleman also experienced in the cultivation of the same description of cotton, states that his experience differs from that of Mr. Hughes with respect to the influence of vicinity to the sea; for he found the cotton come to perfection at the distance of one hundred and fifty miles from its shore.

I quote these results of experience as evidence that in India local climate is not particularly influential upon the cotton plant. All districts are suitable, but of course this circumstance has no reference to the importance of a free circulation of air and the penetration of light among the plants.

In Burmah, cotton is cultivated very extensively, chiefly for the China market, though the accounts are too discrepant (varying from 7,000,000 to 37,000,000) to allow of a satisfactory estimate being given of the annual amount. The greatest quantity is produced in the neighborhoods of Ava and Prome; but that produced at Bauksk and that in the Mataban province (known as Tennasserim cotton), appears to have the longest staple.

It was even supposed that cotton was conveyed from Burmah to Dacca, to be employed there in the manufacture of its muslins; but this supposition, unsustained even by probability, is contradicted by the Dacca custom-house returns, which show that scarcely more than twenty maunds were imported during the four years, 1828-31.

Soil and situation.—To arrive at a just conclusion as to the soil and situation best suited for the growth of superior cotton in Hindostan, it is most important to ascertain accurately the nature of those which have been practically found the most favorable in Georgia and elsewhere. This point being satisfactorily settled, and due consideration had as to the object to be obtained by the cultivation, viz.: the full development of the parts of fructification, we shall be able, with considerable probability of success, to point out those localities which will be found most productive in the different districts and elevations of India.

Of the nature of the soils where the best cotton is grown, we have information from Mr. Piddington. He describes a specimen of one of the best of the Georgia Sea island cotton soils, as appearing "like a mixture of fine dark grey sand and charcoal dust, with fragments of shells, wood, twigs, leaves, and even the shells of cotton seeds, the wood being in all states, from dry to charred, as if the rubbish of the cotton bushes had been burnt on the spot. Upon sifting nine ounces of the soil, taken fairly from the specimen sent, through muslin, it was found that eight ounces of it was fine sand, mixed with dark charcoal-looking dust; and the remaining ounce coarse sand, with a few fragments of sandstone in thin horizontal layers, shells in fragments, with wood and vegetable rubbish as described above.

The wood and twigs were evidently the remains of cotton plants, and suggest that the specimen was taken from the surface. The nature of the subsoil on which it rests was not, unfortunately, made known. The black particles are certainly carbonaceous, and Mr. Piddington states reasons to justify his suspicions that they are fine-

ly-divided lignite. The fragments of shells were not sufficiently abundant to entitle the soil to be considered calcarious, but their slow decomposition would furnish a supply for centuries.

The following exhibits in a tabular form the result of experiments upon several specimens of American and India cotton soils :

COTTON SOILS.	Vegetable matter.		Saline and ex- tractive gels?		IRON.			Carbon. of Lime.	Magnesia.	Alumina.	Silica.	Water and loss.	Price of best cot- tons in Liverpool	REMARKS.
	Protox.	Deutox.	Tritox.											
<i>American.</i>														
1. Georgia Sea island	3.20	0.20	1.00	2.75	0.20	92.00	0.85	24	Vegetable matter, peat, or lignite, partly soluble in cold water, silice in coarse grains. Ditto Vegetable matter, peat, or lignite, but nothing soluble in cold water; no saline matters.		
2. Supposed Geor- } gia Sea island.. }	5.00	0.60	1.30	....	....	4.00	....	0.63	88.02	0.45	24
3. Upland Georgia ...	4.60	0.10	1.25	....	....	2.90	....	1.00	89.35	0.75	12
<i>Indian.</i>														
4. Bundelkund	2.00	0.33	7.75	11.90	trac	3.10	74.00	1.00	5	No peat or lignite; no- thing soluble in cold wa- ter; silice in fine pow- der; <i>kunkur</i> in the gra- vel. Gravel, mostly silice, with some felspar, but no <i>kunkur</i> . Gravel, almost wholly <i>kunkur</i> ; some carbon- ate of iron, half the soil of gravel. Silice mostly coarse grain- ed; gravel, mostly calca- rious.		
5. Coimbatore	2.30	trac	4.00	....	....	7.50	trac	2.80	82.80	0.60	5	
6. Bourbon seed cot- } ton (Tinnevely ?) }	0.15	0.20	....	....	2.88	19.50	0.15	2.00	74.00	1.12	10	
7. Mauritius	1.75	0.30	9.15	40.85	trac	2.50	43.60	1.85	127			
<i>Singapore.</i>														
8. Best soil	9.15	0.60	0.25	1.25	89.20	0.55	9	Vegetable matter, mostly peaty, and very soluble. Vegetable matter, peaty.		
9. Inferior soil	1.00	....	....	0.71	....	0.071	....	....	99.85	....	4

The guarded conclusions which are drawn by Mr. Piddington from these researches, are—1st. That the abundance and fineness of good cotton depends on the quantity of carbon in the soil, and the solubility of that carbon. 2d. That the next best soil is one containing carbonate of lime. 3d. That the soil should not be too tenacious. "I have had repeated experience of this," he adds, "in Bengal; and on the Bombay side of India I observed, some time ago, that a Parsee gentleman, Furdonjee Cowasjee, had partly failed, or experienced much loss, in some experiments in cotton, in consequence of the clayey nature of the soil, which retained too much moisture. In the West Indies, the years of drought are far the most favorable to the cotton crops, and the Singapore soils are instances of cotton growing in what might be called pure sand with vegetable matter; but we must probably make allowances in these instances for the vicinity of the sea." 4th. That it is preferable for the sand to be in coarse particles.

These conclusions, in all of which I cordially agree, sustained as they are by inquiries which I have made, and by a host of concordant testimonies that have been published, concur in establishing one fact beyond controversy, viz., that superior cotton requires a light, porous soil for its production; and resting on a subsoil, permitting the easy escape of superfluous moisture.

Thus, writing from Tinnevely, Mr. Hughes states "that the red and brown loams, or indeed any silicious or calcarious soil, fertile

in a moderate degree, is the most suitable and fruitful. That no very rich, heavy, retentive, stiff soils, should ever be selected, for though the plants are luxurious, yet they have as much and more tendency to produce redundancy of wood and leaf than of fruit buds, besides harboring insects. What is commonly known in many parts of India, under the denomination of *black cotton soil*, Mr. H. states, is to be entirely avoided.

From Persia we have similar information; for there, we learn, that cotton is chiefly cultivated on a silicious soil, containing shells, and consequently well supplied with calcarious matter. Again, Captain Robertson reported to the Bombay government that the Bourbon cotton succeeded very well in the eastern parts of Broach, in the light sandy soils, as recommended by the cultivators of the Isle of Bourbon.

The Agri-Horticultural Society of Bangalore reports that the light brown soil of moderate depth and rather sandy (so prevalent in Mysore) seems to be the soil that suits the Upland Georgia and New Orleans: but the Sea island thrives in moist ground that is well drained. Captain Basil Hall says that for cultivating the New Orleans cotton, a soil, rich, light, and dry is to be preferred; but that it is generally thought *new* land does not produce a cotton so fine in *quality* as it does after bearing one or two crops of grain.

Mr. Ewart, speaking of his experience in the cultivation at Guzerat of Bourbon cotton, or a variety nearly akin to it, says, "it requires a dry sandy soil, and no irrigation: water or manure sends it all to leaves and branches."

The failure of the experiments made at the Akra farm by the Agri-Horticultural Society is also a forcible illustration of the unfitness of an over fertile, tenacious soil for the production of cotton. The Committee of the Society, reporting upon the failure, observe, "that it establishes the fact that the cotton of America will not flourish on a rich and moist soil, while its natural basis is for the most part composed of three-fourths of sand, and one-fourth of clay." This was evidenced "by the rapidity and luxuriance of vegetation, in the production of abundance of wood, leaf, and flower, but little produce."

These results of experience and observation point out that soils constituted almost entirely of the least retentive of all constituents, siliceous, carbonate of lime (chalk), and oxide of iron, are best suited to the growth of cotton—in other words, that the soil cannot be too light, whether it is upland or lowland, maritime or inland. This rule applies, I think, to all except the indigenous varieties of the *G. herbaceum*, which are most productive on soils much more fertile and tenacious than are suited to the superior kinds from Bourbon, Georgia, and elsewhere. This opinion is confirmed by the statements of Mr. Heath, who says, "that in the Madras territories two species or varieties of cotton plant are cultivated, and these require very different soils; one is annual (*oopenum punthee*, *G. herbaceum*?), and the other perennial (*madam punthee*). The first succeeds only in the 'black cotton soil,' formed apparently from the decomposition of trap rocks; but the second only in a very light soil, formed from the disintegration of granitic rocks, especially when mixed with *kunkur* or calcarious tufa."

Mr. Heath made his experiments on the Bourbon cotton in the latter kind of soil, which is more abundant than any other in the districts on the Coromandel coast, south of Madras; and he entertains no doubt that the Bourbon cotton plant might be successfully cultivated wherever this kind of soil occurs. In introducing this cultivation, he had to encounter the usual difficulties consequent on the introduction of any novelty in agriculture; but these gave way to perseverance. At the end of four years, Mr. H. had the satisfaction of seeing the experiment completely successful, as in the seasons of 1823-4, he procured from the district of Coimbatore five hundred bales of clean Bourbon cotton, of three hundred pounds each, and the natives were at that time well satisfied that the cultivation of this was more profitable to them than that of the common cotton of the country.

That light soils should be best suited for the production of cotton superior both in quantity and quality, is precisely what our knowledge of vegetable physiology would have suggested. There is an axiom in that science to which I know of no exception; that whatever tends to promote the production of super-luxuriant foliage, and an enlargement of roots, proportionately diminishes the amount and perfection of the parts of fructification. A familiar example is afforded in England by the potato. Its varieties producing early tubers, are characterized by having little foliage, and no blossom; but if the tubers are removed as fast as they are formed, the foliage becomes more abundant, and they blossom as freely as the later varieties.

A soil abounding in moisture promotes the development of leaves and roots, not only by the superfluity of water, but by presenting to the roots the food of the plant rapidly and more abundantly than is done in a drier soil. To explain this, it need only be remarked that the roots of a plant are only capable of imbibing its nourishment afforded by the soil when it is in a state of solution. The roots of a plant in a light, dry soil, are wide-spreading and minutely fibrous; in a wet, tenacious soil they become more massive and fleshy, as do those of a hyacinth grown in water, which suggests that the food of the cotton plant obtained from the soil, should be presented to it very gradually, and never in super-abundance.

This leads to another important consideration:—

Manures.—The facts just stated indicate that rapidly decomposing animal or vegetable remains, if applied in considerable quantities, or even in small quantities, if not well mixed and dispersed through the soil, must be injurious to the crop. On the other hand, if the soil is poor or exhausted, a small quantity of such fertilizing matters may be applied advantageously. In such soils the American cultivators sprinkle a little well-decayed stable compost along the trench where the seed is to be sown.

The best of all fertilizers for cotton will be doubtless found to be peat, saw-dust, or other woody matters that decay slowly. The natives consider that wood ashes are excellent for the purpose, and the opinion is evidently founded on truth, for the carbonaceous matter remaining in them after combustion, is in a state to become slowly available to the plants.

Of animal matters, the only one that could be applied with a pros-

pect of success, is *bones*, crushed to fine powder, and sown broadcast in very small quantities.

Mr. Piddington recommends *lignite* (fossil wood) peat, farmyard manure, wood ashes, decayed leaves, mud from old ditches, oil-cake, the cotton seed of the preceding crop, pressed or fomented to prevent germination, and charcoal of all kinds, "excepting perhaps the ashes of soondry and other woods near the sea, which may contain too much muriate or carbonate of soda." Why this exception is made I cannot understand, because, of all the saline manures, the two just named have been found in Europe the most beneficial, if judiciously employed.

So far indeed from agreeing with Mr. Piddington in deprecating the use of common salt (muriate of soda or chloride of sodium) as a manure for the cotton plant, I believe it will be found to be one of the most useful that can be employed in its cultivation, and I would most earnestly urge upon every cultivator to give it a fair and careful trial.

I have seen common salt employed too generally and successfully in England, to come to any hasty conclusion that there is a single crop in India which is incapable of being benefited by its application. Let it be remembered that this manure destroys predatory vermin, abstracts moisture from the atmosphere, thus tending to keep the soil regularly moist; *promotes* the decay of stubborn vegetable remains in the soil, being antiseptic only when present in large quantities, and that it acts as a gentle stimulant to the plant, promoting its health.

I am not driven to advocate the employment of common salt as a manure for the cotton crop upon conclusions drawn from these general principles alone, for we have direct and satisfactory testimony upon the subject.

Mr. Bolingbroke says that in Demarara the British settlers found that the cotton plantations succeeded better on the sea-coast than on the banks of the river, a superiority which he attributed to its containing more common salt. This opinion that salt promotes the growth of the cotton plant is also expressed in the third report of the African Institution, it being stated positively that the saline air of the sea-shore, though generally destructive to the coffee plant, is favorable to the cotton.

Mr. Bernard Metcalf, remarking upon the cottons of India, observes, "that the Georgia, Sea island, Surinam, and Demerara cotton plants are all grown on the border of the sea, and the prime qualities only so far inland as the influence of the sea air and tide waters extend."

This fondness of the cotton plant for maritime places has been observed also in other parts of the world, for Mr. Bruce, who resided many years in Persia, states, that the cotton was always fine in proportion as it was grown nearer to the sea.

It might be objected, that the benefit the cotton-plant derives from the vicinity of the sea arises possibly from some other cause than the saline matter thence obtained, but such surmise is rebutted by the results of direct experiments.

A report, published in 1827, by the Hon. Mr. Seabrooke, Corresponding Secretary of the Agricultural Society of St. John's, South

Carolina, seems to put beyond dispute the importance, not to say the absolute necessity, of using common salt as a manure, if a superior stapled cotton is desired. His researches were especially directed to ascertain the cause of the fineness of the Sea island cotton, and the conclusion to which these researches led him was, that *salt mud*, the almost sole manure used by the best planters, was a principal cause of the superiority. "This manure," observes Mr. Seabrooke, "is known to impart a healthful action to the cotton-plant, inducing it rapidly to mature its produce, and giving it a staple at once strong and silky." One of his relatives, by steadfastly adhering to the application of soft mud, literally converted a barren waste to a soil as fruitful as any of which Edisto island can boast.

Capt. B. Bailey, a member of the before-named Agricultural Society, demonstrated that one bushel of salt, added to sixty bushels of compost, and spread upon the soil of a cotton plantation, improves most decidedly the quantum and quality of the crop.

This testimony, sustaining the legitimate conclusions deducible from scientific considerations, must justify my urging the importance of attending to the merits, and testing carefully the effects, of one of the cheapest of manures—cheap, from the small quantity required to a biggah; for I believe that half a maund will be found sufficient, and the most beneficial time for applying it (by hand broad-cast), just before sowing the seed.

Let its value be tested fairly; part of the plantation being salted, and part left untreated. Let the produce of an equal number of shrubs on each be brought separately to the scale and to the merchant, and let these decide the question. Let no one be deceived by that suggestion of idleness, "I can see no difference;" for I would impress upon all the result of my own experience, and that of a hundred others, that *common salt promotes the development of the parts of fructification, and rarely or never increases the luxuriance of the plant*. These are precisely the contingencies desirable to be obtained for the cotton shrub; and I would conclude this head of my subject by suggesting as probable, that the use of salt as a manure will enable the Sea island cotton to be cultivated in inland districts.

It is said that gypsum (sulphate of lime) may be used with success as a manure to cotton-lands, not near the sea. Lands so situated usually contain a minute proportion of this earthy salt. It perhaps, therefore, acts beneficially by entering into the constitution of the plant, as it does into that of clover and lucerne; crops, which have been ascertained in England never to succeed well on soils in which this salt could not be detected.

Preparation of soil before sowing.—No ground should be cropped with two successive growths of cotton, as the produce of the second is always inferior to the first, both in quantity and quality. This rule applies whether the plants remain in production only one or more seasons. Following and cropping alternately is recommended by some planters; but this is certainly an unnecessarily losing system, for if an intermediate crop of any kind is grown, especially if manure is given, and a strictly clean husbandry followed, the succeeding crop of cotton has never been known to be injured; but, on the contrary, rather improved.

In the south-western parts of Mysore they cultivate cotton in succession to millet. As soon as the millet is harvested, about the autumnal equinox, they immediately plow the field, and endeavor to cleanse it more effectually by hoeing it twice with the *cuntay*, or bullock hoe. Manure is then put upon the field, which, after the first rain, is again plowed.

In Bundelcund, land which has borne a winter crop is usually selected for cotton the following year, and the seed appears to be sown upon it without even the previous preparation of plowing.

In other parts of India, although this previous preparation is not quite so neglected, yet in no district is it sufficiently attended to. The cotton-plant roots deep, and never succeeds in any soil not permitting the ready extension of its radicle fibres. This circumstance decides the importance of having it brought to a deep and fine tilth before the seed is sown. A Bombay government report of 1811 states, that in Georgia and Carolina incessant labor is bestowed in plowing, harrowing, trenching, and hoeing the cotton-fields.

This is confirmed by Capt. Basil Hall, from actual observation in Georgia. "The preparation of cotton-land," to use his own words, "requires most particular attention; it must be repeatedly plowed, and frequently harrowed, say twice or thrice, until it is fully pulverized."

The committee, in reporting on the experiments made at the Akra farm, are very particular in enforcing this preliminary cultivation. The success, they say, of a good crop will depend upon the land being dug to a sufficient depth; if less than eighteen inches, the tap-root, which is exceedingly delicate, and extending nearly that length, becomes obstructed, and the growth of the plant is checked.

Choice of Seed.—The employment of seed, possessing its full vegetative power, is a consideration of primary importance, whatever may be the crop under cultivation; but where the seeds are of an oleaginous nature, as is the case with those of cotton,* even extra caution is required, on account of the facility with which their germinating power is injured and destroyed.

Upon this point there are many particulars requiring attention. The seed ought to be selected from the most perfect early stalks, produced on the best soil. Mr. Seabrooke adds, "that frequent change of soil and situation is indispensable to sustain the quality of the cotton produced by any particular kind of seed; and employing mixed and bad seed is the origin of the indifferent quality of the produce of many countries. That which is intended for sowing should be known to be new, and ought to be well cleaned previously to sowing. At Surat, this is effected by rubbing it over a kind of sieve, called a *cott*, the bottom of which is made of close and tightly-strung coir. The refuse cotton, and a great many of the light seeds, are left upon the coir, and the good seed falls through. But it is best, in order to secure the employment of none but perfect heavy seeds, to put the whole into water just previously to sowing, and reject those which float upon the surface."[†]

* In Burmah, they are burnt in the open air to give light at festivals.

[†] *Seabrooke's Rep.*, in 1827, on *Sea Island Cotton*.—We are told that in Burmah they always wash the seed well before it is sown, which must be for the same purpose.

The quantity of seed employed per biggah varies considerably. In Surat, 5 seers are sown upon a biggah; in Poorneah, 10 seers on a biggah, equal to 3,600 square yards; in the Dooab, 5 seers on a biggah, containing 2,800 square yards. Pierce Butler, Esq., a successful cultivator in the Georgian Island, St. Simon's, says "that a bushel of seed is required for an acre."

No particular quantity need, however, be assigned, because, if the best mode of sowing is adopted, drills will be made at eight feet apart throughout the field, and the seed inserted in them at three inches distance.

Time of Sowing.—The committee, who reported upon the causes of the failure of the Akra farm, included among them "positive ignorance of the proper season for sowing;" and, as a more fatal mistake cannot occur than that of performing this operation at a wrong period of the year, it may be well to accord those months which have been selected by the most skilful cultivators.

Mr. Hughes, already mentioned as a grower of Bourbon cotton, at Tinivelly, says, "that there, if the seed can be got into the ground in September, the young plant may be able to resist the continued wet of a heavy monsoon; but little is gained by sowing in October, November, and December, unless the land is very high, dry, and free from weeds. The clear interval of these months, especially early in October, answers well for transplanting, and the first week of January very well, in general, both for sowing and transplanting."

Mr. Gilder, who has also cultivated the Bourbon cotton successfully, at Guzerat, sowed at the end of July, after the heavy rains had ceased.

In America, Captain Hall says, "The sowing is performed from the beginning of April to the 10th of May."

In Central India, Baboo Radhakant Deb relates that the sowing is performed "during the month *Assar* (from mid-June to mid-July), or when the sun enters the sign of Gemini."

In the Dooab and Bundelcund, Mr. Vincent says, "The seed is committed to the ground immediately after the first heavy showers at the end of June, or beginning of July."

In Burmah the seed is sown in the beginning of the rains in April or May.

In the vicinity of Dacca the sowing is performed in October and November.

In the district of Poorneah the seed-time is March and April.

The object to be kept in view is to have the blossoming and harvest-time during the dry season, because heavy rains at such periods of the plant's growth are fatal, both to the quantity and quality of the production.

Sowing.—The best mode of arranging the land for the growth of

Seed intended for exportation, it may here be remarked, with the intent that it shall retain its vegetating power when it arrives at its destination, should not be at all separated from the cotton. Such separation invariably occasions a loss of the power to germinate during a long voyage. To preserve it, it should remain enveloped in the cotton well dried, and be packed tightly in tin cases, soldered to exclude the air. If casks are employed, it should be kept in a dry situation upon the gun-deck of the vessel, but in whatever manner packed, it must never be subjected to the heat of the ship's hold.

the cotton-plant is by dividing it into flat beds at least four feet wide, for the smaller kinds separated from each other by alleys about eighteen inches broad. The seed being sown in a single row down the centre of each bed affords a space of five and a half feet between each two rows.

For the larger kinds, as the *G. acuminatum*, the Bourbon, &c., the beds should be seven feet wide. Mr. Hughes, so often before mentioned, says that the rows ought to be eight feet apart, and the plants thinned in the rows to the same distance. The facility for plowing and hoeing is so great, besides the great advantage of a free circulation of air, that Mr. H. particularly insists on this method, especially as he knows that too close planting is a common mistake.

In Mysore the rows are made two feet apart, and even in some districts of America the intervals are only three or four feet apart; but if there be any increase of quantity obtained by this crowded culture, it is certainly at the expense of quality; and loss is insured by the unnecessary exhaustion of the soil by superfluous plants, and the operations of hoeing, &c., are extremely retarded.

The best mode of sowing is by opening a drill down the centre of each bed by means of a hoe, which insures that the seed shall be buried at a regular, and not too great a depth. The depth should not be more than one inch or one inch and a half.

The seed may be strewed by hand along the drills, about three inches apart, and the earth immediately drawn over it by the hoe. In Mysore, they use a thorny bush for the purpose.

In some parts of America, they open a row of holes with the hoe about a foot apart, sprinkling a handful of seed in each; and in Burmah they adopt the still more slovenly mode of sowing broad-cast.

Preparation of the Seed.—I have already noticed that, in Burmah, the seed is washed before it is sown; but as I am not aware that the cotton plant is liable to the attack of any parasitical plant, I do not see that this operation can be of any benefit beyond removing the seeds which are light and imperfect.

In Central India they wet the seed, and then roll it in powdered cow-dung, waiting until the seed is nearly dry before they commit it to the ground.

About Dacca they merely wet the seed for a few minutes before it is sown; but in Bengal they frequently do not sow it until, by keeping it moist, it begins to germinate.

Dr. Anderson tried all these modes, as well as the mixing of various composts with the seed, but could not perceive that there was any difference in the size or strength of the young plants.

Mixing Crops.—Mr. Gilder, who made some successful experiments in cultivating Bourbon cotton in Guzerat, during the year 1816, grew with it *bejaree*, sown in drills as usual, at the same time. Indian corn is similarly mixed with the cotton crop in the Isle of Bourbon, being held to shelter the tender plants from the sun. Mr. Gilder found the *bejaree* to answer the same purpose; and he says it ought to pay the expense of rent and cultivation the first season, during which the cotton plants yield nothing.

In Burmah they sow brinjalls and other culinary vegetables with the cotton; and in Bundelcund, either *urbur*, *tillil*, or *motee*, are

similarly mixed with it. Indeed, it may be considered as the general practice, but this universality is no justification; and, after some years' experience in cultivating plants, I have never yet found two crops which could be grown together without one interfering with the operations that might be usefully performed to the other, or being in some other way prejudicial. In India, neither land nor labor are so dear as to render it desirable in an economical point of view. The plea of sheltering the cotton plants will be found invalid, for the shelter has a more than equivalent drawback by rendering the plants weak and spindled.

After-culture.—The after-culture consists chiefly in hoeing and stirring the soil, not only for the purpose of extirpating the weeds, but to pulverize the surface, so as to facilitate the penetration of the air, and the absorption from it of moisture by the soil. This is particularly beneficial in the dryest periods of the year, when, as is not generally known, the atmosphere is saturated with moisture.

The seedlings make their appearance in three or four days after the seed has been sown, and in two or three more develop two leaves. The thinning and weeding may then at once be commenced, this being at first carefully done by hand, for the young plants are very tender and easily injured. Mr. Butler, who has been more than once mentioned as a distinguished cultivator in the Island of St. Simon's, Georgia, recommends that the hoeing should be repeated at least once every twelve days until the plants flower, or even until they pod, if the ground is foul.

At such hoeing the thinning must be also attended to, which must be done moderately until the third hoeing; the plants will then be out of danger from the worms, and large enough to bear drought.

In Mysore Dr. Buchanan found that the native cultivators performed the hoeing even still more frequently, drawing the *cuntay* or bullock-hoe between the rows once in every eight days, until the cotton is ripe.

The thinning should keep pace with the growth of the plants, and when they have attained the height of three feet they should be finally thinned to eight feet apart, or whatever less distance may be determined, but the greater the interval the better.

Suckers thrown up about the root must be removed as formed.

Pruning is advisable, if done with judgment.

Mr. Butler says that the Sea island cotton requires not only the suckers to be removed, but, if the plants are vigorous, to have their tops pinched off once or twice.

Mr. N. Savi goes so far as to say that all who understand the cultivation of the Seychelles and Bourbon cotton agree that, to make them produce a fine quality of down, they should not be allowed to grow higher than three feet, which may be effected by cutting off the tender tops of the stems as soon as the first blossoms appear. This causes them to spread wide in their horizontal growth.

Mr. Higgins, in describing the cultivation of Upland Georgia cotton at Allahabad, says that "topping may or may not be resorted to; it may strengthen the plant, but I think it makes them later in bearing."

Mr. Hughes, who has, as before mentioned, cultivated the Bour-

bon cotton so successfully at Tinivelly, prunes his shrubs twice in the year, the first and principal, as soon as the heavy rains have passed away, that is from the 15th to the 31st December, when the shrub is cut down, generally to two feet high and two feet wide, only the firm wood being left with the strong white and brown bark. In the fine days of January the plantation is plowed thoroughly three or four times. In less than two months the whole is again in the finest foliage and full blossom, and continues in full bearing all the months of March, April, and May. A good many pods still remain in June, early in which month a second pruning is practised of the long, straggling, twisted, soft shoots, with diminutive pods. Good produce is yielded from July to September, unless the plants receive damage in these months from rain.

In Persia, after the crop is gathered, and the leaves fed off by sheep, the poor women are allowed to break the shrubs down close for fire-wood. The stumps shoot out again as luxuriantly as ever when the season returns.

Transplanting.—If any vacancies occur in the rows while the plants are young, these may be successfully filled up by removing to these places some of the plants from situations where they may be growing too thickly; otherwise, it is not a practice to be commended, as it renders the plants at least a fortnight later in coming into production.

Watering.—Although the cotton plant requires a light silicious soil, and is destroyed by water remaining stagnant around it, yet excessive dryness of soil is to be avoided. It may even be flooded with advantage, provided the water is allowed to flow off quickly again.

To preserve the soil in a due state of moisture, considerable attention is requisite during every period of the plant's growth. The object is to keep it soft and damp, so as to allow the free extension of the roots, but at the same time to avoid having the texture saturated with wet; and, much more, never to have so great an excess as to suffer the water to stand in pools upon the surface. The same precaution is requisite at the time of sowing: for water in excess at that time either induces the total decay of the seed, or causes its germination to be weak and unhealthy. When the shrubs are well grown and strong, which they are by the end of October, they seldom require more moisture than they acquire from the heavy dews which then accompany the cold weather. This, however, is not the case if the weather be dry. Particular attention to this point is requisite during the blossoming time.

The flower-buds appear in November, and in the course of five days the blossom is fully open. The flower falls off after being expanded about four days, leaving the pod apparent. Bright weather and heavy dews are to be desired during the blossoming: rain at that time destroys the crop. The pod requires about four weeks for ripening, this period being curtailed or extended in proportion to the heaviness of the dews and brightness of the sunshine at the season. A deficiency of either delays the ripening. If the dews are particularly light, a gentle watering may with advantage be occasionally given. In Peru and Egypt the irrigation of this crop is most carefully attended to, and the results are proportionately beneficial.

Gathering.—The season for gathering differs in India with the place of growth.

Mr. Gilder, at Guzerat, picked his Bourbon cotton from the end of November to the close of January—a second, but more scanty crop occurring in May.

In Central India, Baboo Radhakant Deb says, the pods are ripe in the month Choyte, when the sun enters Pisces (mid-March to mid-April), and that the gathering continues until the close of May.

About Dacca the crop is gathered in April, May, and June; and where the situation is beyond the reach of inundation, a second crop, but inferior in quantity and quality, is obtained.

In Bundelcund, on the poorer soils, the crop begins to be collected about the middle of September, but from those of the richer and more northerly situated soils, not until November and December.

When the pods are ripe, which they are in less than two months after blossoming, three of their sides burst and the cotton protrudes through the fissures. In five or six days after the pods have burst the cotton is usually gathered, though it is often allowed to remain longer. At Surat they wait for ten days, and continue the gathering once after every similar lapse of time until the close of April, by which time the cotton is all gathered.

There is no doubt that the being allowed to remain so long without being gathered after the pods have burst, is not injurious to the quality of cotton, but it is at the same time quite as certain that it is in no way beneficial. Granting this, however, to be immaterial, the plan of allowing it to remain seems objectionable, upon the plain reason that every day renders the skin of the pod and the leaves of the calyx more brittle, and consequently increases the liability to injure the quality of the crop by their fragments getting intermixed.

I have a strong opinion that it would be found in every way advantageous to gather each pod immediately that it shows symptoms of bursting, as enabling the cotton to be separated from it without so much liability to contamination from its fragments. However this may be, experience teaches us that the gathering should be effected very early in the morning while the dew is upon the plant; the calyx is at that time pliant, yielding to the hand without breaking, and consequently keeping the cotton free from leaf.

In gathering, care must be taken to grasp at once all the locks of cotton in the pod, so that they may come away together. If any dry leaves fall upon the cotton before the gatherer has secured it in the bag hanging by his side, they must be carefully removed. This bag must be covered to prevent the admission of pieces of the dry leaves, always to be found about the branches, and which are disturbed by a very slight agitation. It is this admixture of leaf which is so much objected to by the spinner and proportionately lowers the value of the cotton. After gathering, it should immediately be thoroughly dried, whether it is to be stored or at once dressed and packed. A woman in America will generally gather twice as much per day as a man.

The pods which burst the earliest, usually those on the tops of the shrubs, produce the finest cotton; the quality as well as quantity diminishing as the plants decrease in vigor. This is so appa-

rent, that the cotton of the first two gatherings is usually worth three or four rupees per candy more than that of the later gatherings.

Produce.—In favorable seasons a biggah in *Guzerat* will produce 25 maunds of cotton, mixed with the seeds. Where these have been separated by the wheel or cheriah, the cotton will be found to weigh about 9 maunds, and the seed 15 maunds. In the eastern and southern parts of India, two or three maunds of clean cotton is the estimated average of a biggah.

Twenty-seven biggahs in *Broach* produce $44\frac{1}{2}$ maunds of clean Bourbon cotton, fully equal to that of the island after which it is named.

In *Poorneah* five maunds of uncleaned cotton are usually grown per biggah.

Dr. Buchanan says, that in *Mysore* the produce varies between 110 and 270 lbs. per acre.

Captain Hall states, that in *America* from 400 to 500 lbs. of cleaned cotton is produced from a similar space of ground.

In Central India Baboo Radhakant Deb states, that a biggah yields about one maund and three-quarters of cleaned cotton.

The comparative proportion in weight between the cotton and the seed usually varies from one to four and one to three. It is, of course, a great object in the growth of cotton to obtain an increase in the proportion of wool produced above that of the seed. At Shahabad this was effected in the instance of Egyptian cotton. Mr. Seyburne says, its produce there was not only superior in staple, but was half cotton and half seed, while the country plants yielded only one part cotton and three parts seed.

STATISTICS OF COMMERCE AND MANUFACTURES.

I.—FACTS IN THE COTTON MANUFACTURE.

WE must be allowed to press the call that we have from time to time made for information upon the present state of the cotton manufacture in the Southern and Western States. We have been turning in every direction for this knowledge, but have only obtained a limited amount. Will not citizens in different States aid us in obtaining the correct data? We have abundance of notes which were taken in the study of the manufacturing system, and in the inspection of those in our own country, which will be embodied in several interesting articles hereafter.

DECLINE IN THE VALUE OF COTTON GOODS.

Mr. Woodbury, in his report, 1836, made these remarks:

"The value of manufactured cottons, when the quantity of raw cotton in them is the same, differs greatly according to different periods of time in the same country, and according to the quality of the raw material, and the machinery used, and the skill employed.

"Thus, in England, in twenty years after Arkwright's invention in spinning, manufactured cottons fell nearly eight-ninths of their former price. Every ten years since, some have computed their fall in price as equal to 50 per cent. In the American Encyclopedia, article 'cotton,' it is said that, from 1815 to 1829, the coarse cloths fell two-thirds. In 1810, yarn, on an average, was worth \$1 12 $\frac{1}{2}$ per pound. In 1814, it was estimated under \$1 per pound by Cox. In 1832, it was said that the cost of making most species of yarn had been reduced, since 1812, about a half, and that of weaving by power-looms, &c., still more. Some of the differences as to the whole value of manufactured goods, spring from not advert-

ing to all the fall in prices, though the yarn and cloth have increased in quantity. In 1786 spinning cost 10s. per pound of No. 100, in 1824 only 8d., or only 16 cents instead of 240 cents.

"The best cotton goods are supposed to be made in Switzerland, where the skill and machinery are good, and the climate congenial. But the raw material being carried so far by land is expensive, and the manufacturer cannot compete with England, though 20 per cent. cheaper than in France.

"In France many fine goods are made by skill and experience; but the machinery is poorer, and costs more. Hence the prices in those two countries of the cloth made from a pound of raw cotton exceed, on an average, 50 cents, while in England they are about 50 cents, and in the United States are now somewhat less. In 1806 the cotton was made chiefly into velveteens, nankeens, crapes, muslins, &c.

"But in 1810 our cotton cloths made in houses and manufactories, on an average, were estimated at 33 cents per yard. The prices are now lower, notwithstanding the introduction so extensively of finer cloths and of printing calicoes.

"We make more coarse and substantial cloths of cotton now than England, and they can be afforded cheaper by two or three cents per yard. They are in greater demand abroad. We put more staple into them, the raw material being cheaper here. But the English laces, being made chiefly of Sea island cotton, with a very little silk, enhance the value of each pound to over \$5; and the whole manufacture of it equals nine millions of dollars per annum, and 304 millions of square yards.

"The coarse India cottons are made of the worst materials and less smooth, being chiefly spun by hand, and the raw material poorer. But the thread so spun is softer and the cloth more durable. But the power to spin a fine thread there has been carried almost as far as in England."

IMPROVEMENTS IN COTTON MACHINERY—THE SPINDLE.

It will be observed that this was written ten years ago, and must give an inadequate notion. We publish it intending to mark the farther improvements in a subsequent number.

"With a view to furnish a few more details, which may possess some usefulness and interest, it may be remarked, on the power of the spindle, that, by improvements in machinery, it is said that one now sometimes revolves 8,000 times in a minute, instead of only fifty times, as formerly, and that one will now spin on an average from one-sixth to one-third more than it did twenty years ago. Indeed, in 1834, it is said that one person can spin more than double the weight of yarn in a given time that he could in 1829. The quantity of raw cotton spun by one spindle depends, of course, on the fineness of the thread and the quality of the machinery. In England, where a considerable portion of the yarn is finer, the average is about 8½ ounces weekly, or from 27 to 28 lbs. yearly; while the average in the United States is about 50 pounds yearly, of yarn number 20 and 25 in fineness, and about 26 pounds of number 35 and 40. In 1808 the average was computed at 45 pounds per spindle, of cotton yielding 38 pounds of yarn. The difference in weight between the cotton and the yarn, by loss from dirt and waste, is usually estimated from one-twelfth to one-eighth. At Lowell, 100 pounds of cotton yield 89 pounds of cloth, though the average here used to be estimated only 85 pounds, when cotton was not so well cleaned and machinery less perfect. One spindle at Lowell produces, through looms, &c., on an average, 1 $\frac{1}{10}$ yards of cloth daily; but this result must differ greatly with the fineness of the thread, excellence of the looms, width of the cloth, &c.

"In 1830 it was computed that 37 spindles were necessary to supply one loom; though in 1827, at Lowell, the actual proportion was only 26, at Exeter, in 1831, it was 29, and now at Lowell it is 31. The number of looms in England in 1832 was only one to about 40 spindles, so much more yarn is made and not woven there, and those were mostly hand-looms. But in 1834 the number of them was about 100,000 power-looms and 250,000 hand-looms, or in all, about 1 to 30. One loom formerly wove daily about 20 yards of cloth of the ordinary seven-eighths width, more of the 26 inches in width used for calicos, and less of the five-quarters wide. The average now is from 30 to 40 yards of No. 20. At Lowell, in 1835, it was 38 to 49 yards of No. 14, and 25 to 30 yards of No. 30. It requires from four to five yards of cloth of Nos. 20 to 25 yarn to weigh one pound, and five to six yards of Nos. 35 and 40.

"The power of the spindle, as connected with the number of persons actually employed in factories, is, that in making plain cloth of ordinary width and fineness, one person is needed to conduct all the business from the raw cotton to the finishing of the cloth for every 20 spindles. If the cloth be colored and printed or stamped, one person will be wanted for every seven spindles. This would be about 250 persons for all purposes in a factory of 5,000 spindles, making plain brown cloth. One person can manage from two to three power-loom.

"The proportion of spindles to a factory was formerly very small, both in England and this country. Before 1806 it was only one or two hundred sometimes, and seldom exceeded 1,000. Soon after that some mills were built containing 4,000 spindles. The average in new mills is now from 5,000 to 6,000. In Lowell, 1836, in 27 mills they have 129,828 spindles, or a little under 5,000 to each, though they print, &c., in some.

"A factory with 5,000 spindles must be about 155 feet long and 45 wide, four stories in height, and contain about 140 looms, with other suitable machinery for picking, warping, sizing, &c. Such a one, with a few shops and out-houses appurtenant, and land and water privilege, would cost from \$140,000 to \$220,000, according to the materials for building, whether wood, brick or stone, and the distance from navigable waters, so as to affect cost of privilege, freight, &c., with other circumstances too numerous for recital. If bleaching or printing cloths be added, more expense will be necessary, and more persons than 250, the average for such an establishment including machinists.

"This would be a permanent investment of capital in buildings, water-power, machinery, and all appurtenances, equal to \$28 or \$44 per spindle, independent of the temporary investment of capital to buy raw cotton, pay wages, &c. It would oftener reach, and even exceed the latter sum, than only the former. In 1810 it was computed that the capital actually invested in machinery and real estate averaged \$60 per spindle. It is not proposed here to go into any comparisons of this expense now with former periods, or with other countries, except in regard to the spindle alone, and the machinery as a whole.

"In 1806, when machinery could not by law be exported from England, and the machinists here were unskilful and few, the spindle and its appurtenances, from the picker to the loom inclusive, it is computed, cost \$30 each; or 300 to 400 per cent. higher than it cost at that time in England, and over double its present cost in the United States.

"The great fall in its cost and value since, with various improvements in machinery, has been the cause of much loss to many capitalists employed in the manufacture. By A. D. 1820 the machinery cost only about double its then value in England. In 1826 the machinery was made here, on an average, for about \$14 per spindle; and though now lower, it still costs from 40 to 60 per cent. more than in England. The whole machinery there, and the mill, cost only \$4.16 per spindle. But that includes, probably, no looms, &c., and merely the building, without the water or steam power, and the mule spindle, moved by hand, and costing less than half what the throstle spindle costs, and which is chiefly in use here. In France, in 1832, the spindle alone, which is about half the expense of all the machinery, cost \$8. It used to cost there \$10. Now the spindle alone costs here about \$4½ if of the throstle kind, and \$2½ if of the mule kind. In some places in the United States, five per cent. higher. The former alone cost here, late as 1826, it is said, \$8 each. The spindle used in the filling frame, quite extensively at this time, costs about \$6.

"These may constitute useful and sufficient data for farther computations. As a matter of some curious interest it may be added, that *one pound* of cotton usually makes eight yards of coarse muslin, and is then increased in value from the raw cotton eightfold. But if spun into the finest yarn it is worth five guineas, and in 1780, if woven into muslin and tamboured, was worth £15. It may now be converted into a piece of lace worth 100 guineas. In India, in 1786, they could spin cotton threads over 115 miles to the pound; in England they have since been spun 167 miles long from a single pound. One pound of cotton spun into No. 100 yarn, extends about 84,000 yards in length. The yarn spun yearly in England would reach round the globe 203,775 times, or over 600 times each day.

"They use flour for sizing, &c., in cotton manufactures, 42½ pounds to each spindle per annum, or four pounds weekly to each loom. In this country, but one pound weekly to each loom. But at Lowell, 3,800 barrels to 4,197 looms, yearly, or near four pounds each per week. In England three times as many spindles and factories are moved by steam as by water. In the United States not one in a

hundred factories is moved by steam. The power to move all the cotton mills in England equals that of 44,000 horses, of which only 11,000 is by the water-wheel. In 1824 the whole power was estimated at only 10,572 horses. Each factory of common size and employment requires from 60 to 80 horse power here, or about 11½ horse power to 1,000 spindles."

Dates of the most important changes in the cultivation, manufacture and trade of cotton.

- 1730.—First cotton yarn spun in England by machinery, by Mr. Wyatt.
 1742.—First mill for spinning cotton built at Birmingham; moved by mules or horses; but not successful.
 1756.—Cotton velvets and quiltings first made in England.
 1761.—Arkwright obtained his first patent for the spinning frame, though he made farther improvements in 1768. Became free 1784. Baines says his first patent was in 1769. So does Wade, and that his second patent was in 1771.
 1779.—Mule spinning invented by Hargrave, or rather perfected by Crompton.
 1781.—First imports of raw cotton into England from Brazil; poorly prepared; and in three to nine years after, first from United States of their own growth; and from India and Bourbon about 1785.
 1782.—Watt took out his patent for the steam-engine, though some say in 1769 the first one, and got into general use to move machinery in 1790. He began his improvements in 1764, according to Wade's history of the mid-dling classes.
 1785.—Power-looms invented by Doct. Cartwright; though previous to that some similar models had existed which had not been patented or used. Steam engines used in cotton factories. Cylinder printing invented by Bell. Arkwright's patent expired, and a great impulse to manufactures of cotton.
 1789.—Sea island cotton first planted in the United States; and upland cotton first cultivated for use and export about this time, or three or four years previous. Some say in 1786.
 1790.—First cotton factory built in the United States, in Rhode Island. Water power first applied to the mule spinner, by Kelly.
 1793.—The cotton-gin invented by E. Whitney, in the United States. This is often stated to be in A. D. 1795; but the patent is dated in 1794, March 14.
 1798.—First mill and machinery erected in Switzerland for cotton.
 1803.—First cotton factory built in New Hampshire. Power-loom, as now used, perfected in England, and patented by Harrock.
 1808.—Stamping the cylinders for printing cloth by means of dies introduced at Manchester.
 1810.—Digest of cotton manufactures in the United States, by Mr. Gallatin, and another by T. Cox, Esq., and public attention drawn to their growing importance.
 1815. } The power-loom introduced into the United States first, at Waltham; in
 1816. } 1815, it is said in American Encyclopedia, article "cotton."
 1822.—First cotton factory erected at Lowell.
 1826.—First exports of American cotton manufactures to any considerable value.

• 2.—CANADA—TORONTO.

The population of this region north of the United States, and south of the heights separating the waters of the St. Lawrence and Hudson's Bay, is estimated at one and a half million.

The region is snowy one-third or half the year, interrupting agriculture. The wheat crops since 1832, have greatly suffered by the annual depredations of an insect. While Canada formerly exported largely of breadstuffs, she now is compelled to import for consumption. We give the statistics of the imports and exports of Toronto.

TRADE OF THE PORT OF TORONTO, JANUARY 1846—JANUARY 1847.

Vessels entered the port—

Steamers and coasters employed between the British ports.....	2,089
From foreign ports—	
With cargoes.....	659
In ballast.....	2
	}661

Total arrivals for the year3,750

IMPORTS, TORONTO.

Articles, &c.	Quantity.	Articles, &c.	Quantity.
Cows.....No.	1	Muscovado sugar.....cwt.	14,071 3 7
Horses.....No.	8	Fish—dried, salted, and	
Lambs.....No.	2	pickled.....cwt.	390 0 24
Oxen.....No.	60	Teas, various qualities.....lbs.	405,541
Pigs.....No.	10	Tobacco.....lbs.	299,826
Sheep.....No.	1,000	Segars.....lbs.	2,990
Clocks and watches.....No.	507	Snuff.....lbs.	5,886
Flour.....bbls.	23	Leather.....lbs.	95,199
Tallow.....bbls.	1,515	Raisins.....lbs.	125,860
Salt.....bbls.	9,316	Rum.....gallons	1,528
Oysters, lobsters, and		Cider.....gallons	3,935
turtle.....pkgs.	1,888	Spirits.....gallons	4,452
Books and paper.....pkgs.	1,668	Wines.....gallons	2,153
Cotton manufactures.....pkgs.	888	Coal.....tons	1,143
Glass.....pkgs.	885	Boots and shoes.....pairs	3,247
Woolen.....pkgs.	426	Apples.....bushels	2,732
Silk.....pkgs.	120	Potatoes.....bushels	114
Drugs and medicines.....pkgs.	345	Total value of imports, in-	
Hardware.....pkgs.	2,452	cluding other goods, pay-	
Cheese.....cwt.	548 1 20	ing <i>ad valorem</i> duty.....	£163,477
Butter.....cwt.	27 0 14	Value of free goods—being	
Bacon and ham.....cwt.	75 2 0	furniture, household ef-	
Meats—salted, cured,		fects, tools, &c., of settlers	
and fresh.....cwt.	209 0 9	coming into the province,	
Coffee.....cwt.	1,917 0 4	about.....	£6,000
Molasses.....cwt.	1,128 1 13	Importations of specie.....	£104,645 16 8

EXPORTS.

Articles, &c.	Quantity.	Articles, &c.	Quantity.
Flour.....bbls.	194,856	Lard.....kegs	283
Pork.....bbls.	4,133	Starch.....boxes	....600
Beef.....bbls.	80	White pine boards.....feet	1,680,000
Timothy seed.....bbls.	176	Bricks.....No.	1,030,000
Wheat.....bush.	108,116	Sheep pelts.....No.	10,750
Oats.....bush.	3,000	Woolen cloths.....yards	40,000
Peas.....bush.	1,000	Blankets.....pairs	130
Beef.....tres.	65	Furs and peltries, value a-	
Hams.....tons	9	bout.....	£2,000
Horn tips and scraps.....tons	11	Fresh fish.....	£500
Ashes.....casks	283	Total estimated value of ex-	
Butter.....kegs	200	ports.....	£301,000

3.—IMPORTANCE OF STATISTICS.

From a lecture delivered in Grenada, and published in the Colonial Magazine, we introduce an important passage, corresponding with the views we have so frequently expressed.

“To the agriculturist, it is interesting to know what proportion the population bears to the number of acres in cultivation, and the production of the soil, so as to regulate his labor and economize his means—for labor is wealth. To the merchant, it is necessary to know the proportion of the population to the produce of the country, the imports and the exports, so as to ascertain the consumption and the average expenditure of each family, and thereby govern his enterprising speculations. To the physician, it is important to ascertain the proportion of the births to the deaths, and of each of these to the aggregate population, as well as the respective causes of death, and the effects of climate on diseases, so as to arrive at sound deductions respecting the nature of complaints peculiar to certain countries, and to certain ages, professions, and classes of the people; the general state of public health, and other important points connected with vital statistics. To the statesman, it is indispensable to know the number of the population—their wealth or poverty—their increase or decrease—the number of poor in comparison with the rich—the number of laborers, or the productive part, with the number of thinkers, or the unproductive part—the proportion of the sexes—the number of marriages—and the general state of public morals, so as to enact wise and just laws that will

not bear heavier on one part of the community than another, but such as tend to prevent vice and encourage virtue, and are calculated to promote the welfare and equitable government of the whole. To the philosopher, it is interesting to know the ratio of mortality in a country, and to trace its causes, to ascertain the number of marriages, the average produce of these marriages, and to investigate the various contingent circumstances which affect the reproduction of the species, the value of lives, and the doctrine of probabilities, and thus be enabled to calculate the epoch when any given population would double itself, and a thousand other matters highly important and interesting to an inquiring mind."

4.—GREAT LAKES OF NORTH AMERICA.

In our last number we had an article upon the trade of the Lakes and the immense navigation conducted upon them. We are now able to offer some additional interesting particulars, obtained from the valuable Colonial work of Mr. Simmonds, of London.

"Extending from east to west over nearly fifteen and a half degrees of longitude, they seem, regarding them upon the map, to rest like a crown of waters upon the head of the Union, their centre of gravity; the island of Macinac, balancing upon the meridian which separates Indiana and Ohio, equi-divides Kentucky and Tennessee, and passes between Georgia and Alabama, and East and West Florida, in the Gulf of Mexico. The difference in the latitude of the northern and southern extreme points of the Lakes is not far from eight and a half degrees. The estimated area of country draining into them is 400,000 square miles; the extent covered by the waters of the whole is 93,000 square miles, divided as follows: Ontario, 6,300; Erie, 9,600; St. Clair, 1,060; Huron, 20,400; Michigan, including the bay, 24,400; Superior, 32,000. The waters of the 'Father of Lakes' (Superior) are 568 feet above the level of the sea; which elevation is attained by unequal gradations, each lake rising above the previous one from Ontario to Superior. The surface of the waters of Ontario is 232 feet above the tide-water of the St. Lawrence; Erie rises 333 feet above Ontario; St. Clair 6 feet above Erie; Huron and Michigan are 13 feet higher than St. Clair; and Superior rises 44 feet above those.

"The St. Clair is by far the shallowest of any of the lakes, the average depth being about 20 feet; Erie averages in depth about 85 feet; Ontario 500; Superior 900; Huron and Michigan 1,000, as nearly as can be arrived at. The deepest soundings are found in Lake Huron: off Saginaw bay, we are told, leads have sunk 1,800 feet, or 1,200 feet below the level of the Atlantic ocean, without reaching the bottom.

"Great difference is observable in the transparency and purity of the waters of the several lakes. Those of Ontario, Erie, and the southern part of Michigan have no peculiar excellence—while those of the northern part of Lake Michigan and Lake Huron surpass in clearness and flavor any waters of which we have ever drunk, though a still greater purity and a higher relish is said, by those who have visited that lake, to distinguish the waters of Superior.

"So completely transparent are the waters of Huron, that the rays of the sun are said to pass through them as through the cloudless atmosphere, without meeting with solid matter in suspension to elicit their heat. Thus Dr. Drake accounts for the fact, which he himself ascertained by experiment, that the water on the surface, and that 200 feet below the same spot, had precisely the same temperature, 56 degrees.

"Through the Welland Canal the navigation of the Lakes is uninterrupted for the distance of 844 miles from east to west; the distance north and south is, of course, various, ranging from 347 miles as the extreme distance. The country to which these waters are the great highway of transport has often been the theme of high-wrought eulogium, for the variety and richness of its soil, and the extent of its resources. The justness of these praises, as well as the extent to which this fertility has been subjected to the hand of culture, and the rapidity with which these resources are being developed, under the life-bringing touch of the enterprise which peculiarly characterizes its inhabitants, is gathered from the bare glance at the fact, that the commerce of the four great Lakes, including all capital afloat, during the year 1843, was estimated by the Topographical Bureau at 65,000,000 dollars. The total amount expended by the General Government of the United States on these Lakes for the improvement necessary to protect and convenience this commerce is stated by Mr. Whittlesey, of Ohio, at \$2,100,000.

"When the projected ship-canal around the Falls of Ste. Marie shall be completed, the wide expanse of Lake Superior will be added to the present extent of the Lake navigation, allowing the adventurous commercialist to crowd some 175 miles still farther north, and several hundreds farther west. The length of the road proposed to be cut by this canal is said to be but *three-fourths of a mile*, and the whole expense of the improvement is estimated, if we rightly remember, at 230,000 dollars. By this comparatively small outlay, access is at once obtained to the whole country tributary to Lake Superior—a tract so rich in timber and mineral wealth, that it has not been unaptly termed 'the Denmark of America.'

"The following is a most accurate statement of the length, width, and depth of the respective Lakes, which cannot fail to be interesting to our readers:

THE GREAT LAKES.

	Greatest length. Miles.	Greatest breadth. Miles.	Aver. depth. Feet.
Ontario.....	180	40	500
Erie.....	270	80	200
Huron.....	250	100	900
Superior.....	350	150	900

Of these, the surface of Lake Superior has been calculated to be 1,048 feet above the level of the high tide of the sea; Lake Huron is 570 feet above ditto; Lake Erie is 330 feet above Lake Ontario, and 566 above the Hudson at Albany. The Ontario is 218 feet above the St. Lawrence and Three Rivers."

There are several important canals connected with the Lakes, which may be briefly noticed. Erie canal, 363 miles, in the State of New York; Welland canal, uniting Erie and Ontario, and avoiding the Falls of Niagara, 42 miles; Rideau canal, 135 miles; Greenville canal; Lachine canal, from Montreal to Upper Lachine.

In relation to the Falls of Niagara and the river St. Lawrence, the following from the same source is valuable:

FALLS OF NIAGARA.

Extent of the Horse-shoe Falls, on the British side.....	2,200 feet.
Breadth of Goat Island, between it and the American Falls.....	980 "
American Falls in breadth.....	1,140 "
The whole extent, or full three-quarters of a mile.....	4,220 "
Height of the Horse-shoe Falls.....	150 "
Height of the American Falls.....	160 "
Extent of the cave beneath the Horse-shoe Falls, from the outside of the Termination Rock.....	153 "
Height of the cave is estimated by Capt. Hall at.....	100 "
The estimated quantity of water discharged over the Falls is calculated at 48,524,000 cubic feet, or 113,510,000 gallons, per minute.	
Depth of the river above the Falls, as near as can be approached, about	200 "
Breadth of the river at the ferry.....	1,170 "

THE ST. LAWRENCE.

Lake Superior being the real head of this river, the distance from Cape Chat, which is 100 miles above Cape Rosier, where its mouth may in reality be deemed to commence, to the head of that Lake, is calculated to be no less than.....		2,120 miles.
Breadth of the mouth of the river at Cape Rosier.....	80 "	
Breadth at Kamouraska, where its waters are perfectly fresh, and its average depth twelve fathoms.....	20 "	

5.—COMMERCE OF CUBA—SUGAR, COFFEE.

For the following we are indebted to Simmonds' Colonial Magazine:

EXPORTS FROM CUBA.

	SUGAR. Arrobas.*	COFFEE. Arrobas.
1826 to 1830.....	6,508,138	1,718,865
1830 to 1835.....	7,893,567	1,995,832
1835 to 1840.....	10,166,555	1,877,646

* Four arrobas are equal to one hundredweight.

For the five years ending with 1845 we have only the exports before us from a portion of the island.

We append a list of the export of boxes of sugar from Havana and Matanzas during the years 1830 to 1846, which will show the progress of cultivation in that part of the island. In the year 1845 a great falling off appears; this was owing to the destructive hurricane which took place in October, 1844. The estimates of the ensuing crop, which is just beginning to reach Europe, are from 800,000 to 900,000 boxes. The Cuba sugar-boxes contain about 400 lbs. English weight. Up to the end of February there had been shipped from Havana 63,199 boxes, and from Matanzas 34,204, against 28,736 and 14,552 at the same period in 1846.

EXPORTATION OF SUGAR FROM THE ISLAND OF CUBA FROM 1830 TO 1846.

	Havana.	Matanzas.	Total.
1830.....	303,341.....	141,138.....	444,479
1831.....	276,329.....	126,560.....	402,889
1832.....	298,801.....	142,886.....	441,687
1833.....	284,955.....	144,030.....	428,982
1834.....	283,164.....	175,592.....	458,746
1835.....	306,007.....	185,553.....	491,560
1836.....	310,208.....	189,945.....	500,153
1837.....	316,834.....	191,117.....	507,951
1838.....	373,920.....	236,592½.....	610,512½
1839.....	329,762½.....	194,043.....	523,805½
1840.....	444,324.....	263,215.....	707,539
1841.....	434,464.....	261,967.....	696,431
1842.....	415,465.....	260,766.....	676,231
1843.....	429,003½.....	270,692.....	699,695½
1844.....	528,778½.....	299,189.....	827,967½
1845.....	256,556½.....	99,436.....	355,992½
1846.....	505,983.....	289,112.....	795,095

The greater part of the sugars produced in the northern part of the island is "clayed," but of late more attention has been turned also to Muscovados, and a larger quantity of that description than heretofore is likely to find its way to this country for the use of refiners and grocers. We have no particulars of the production of the south of the island, at St. Jago, Cienfuegos, and Trinidad, but are informed on good authority that the quantity grown in that part is at present not under 150,000 to 200,000 boxes, clayed and Muscovados.

The exports of coffee for the whole island were, in 1840, 2,197,771 arrobas; in 1841, 1,260,920½ arrobas. We have not the complete details for subsequent years, but the exports in the past two years were—

	1845. Arrobas.	1846. Arrobas.
From Havana.....	160,668½.....	298,900
From Matanzas.....	10,325.....	21,817
	170,993½	320,717

MISCELLANIES.

1.—SLAVE TRADE ON COAST OF AFRICA, SIERRA LEONE.

THE European settlements on the west coast of Africa, are, to the northward, Goree and Senegal, owned by the French; Bessaô and Cacheo, by the Portuguese; Gambia, Bulama, and Sierra Leone, by the English, with Cape Coast, Prince's island, and Fernando Po, to the south.

The French do not export slaves across the Atlantic, although they tenaciously maintain domestic slavery in their settlements. On the contrary, the Portuguese in Bessaô, Cacheo, and Cape Verde, carry on the traffic to a great extent under the flag of Brazil; as does Spain, also, preferring the Brazilian flag, which does not forfeit the vessel, and consequently remove it from the trade.

The notorious slave-dealer, Governor Kitara, resides at Bessaô; with him

Pedro Blanco, Martinez of Gallinas, Felipe de Souza, called by the natives Char Char, of Lagos and Whydah. These are justly considered the most extensive dealers on the west coast, and their adventures frequently come under the surveillance of the Mixed Courts in Sierra Leone.

To the southward of Bessaô is the Nunez, situate on the river of the same name, and, under the dominion of the native chief, the Landewas, the resort of both French and English, whence are procured gold, ivory, wax, hides, coffee, and other productions; but in consequence of the frequent feuds among the chiefs, and incursions to the settlement for the object of plunder, the merchants have placed themselves under the protection of the British cruisers, which visit periodically. Rio Pongas, in the neighborhood of the Nunez, is almost exclusively engaged in the slave trade; consequently, legitimate commerce is little known there, nor is it the resort of any creditable merchant of the Colony, as all mercantile operations there are of a very questionable character. From this place to Sierra Leone are the Isles de Los, Bogga country, from whence are procured hides, wax, palm oil, small quantities of gold, ground nuts, mats, gum, ivory, &c.

We now come to the British Colony of Sierra Leone, which merits particular attention from the solicitude with which the Government has watched over it ever since its establishment. This Colony was founded by the English in 1786, under the direction of Captain Tomson, of the Navy, who took with him 400 distressed negroes from London, with about 60 whites, to prepare and cultivate that portion of the country which was ceded by King Tom for the purpose of Colonization. This system, however, having soon failed, Messrs. Wilberforce, Thornton, and other intelligent persons, were induced to undertake the object upon a different system, justly reasoning that little benefit could be effected from the mere abolition of the slave trade, unless the natives were instructed in religion and the arts of civilization, which alone can render a people free.

Instances have occurred of slave dealing in the Colony by *liberated Africans* themselves, as in the case of the notorious Gibson, sentenced to five years in a chain gang, but who, through the cognizance of the driver, escaped to the Mandingo shore, leaving the driver to serve the sentence in his place. Other cases of Mahomedans, Mandingoes, and Foulahs or Timannees, residents in the Colony, are established, who have inveigled liberated African boys or children out of the Colony and sold them in the interior. Cooper Thompson reports from Teembo that he there found a family so disposed of, and had resided for many years, but was ultimately liberated by King Alimammee Foodi Bocarri.

Cummings, a liberated African, on more occasions than one, has had bills presented to the grand jury against him for slave dealing, also a Mandingo, named Dowdah; but, from the manner in which the evidences are trained by the people in the interior, conviction is difficult, yet many have been punished severely.

Aiding and abetting in the traffic is more than suspected.

The purchasing of condemned slave vessels is a source of no inconsiderable profit, and of moment to the British merchant of the Colony, sold as they are at a very low rate by the commissioner of appraisement and sale to the courts, and then re-sold to the Brazilian or Spaniard for double or treble the amount. In this way one of the most extensive merchants in the Colony finds it not the worst part of mercantile speculations.

It is scarcely credible that women should have connected themselves with this speculation, as buyers, sellers, and kidnappers, among whom, one of the most notorious, was the infamously-famed Donna Maria de Cruz, daughter of the dreadful Gomez, Governor of Prince's island. This disgrace to her sex, among other vessels captured by the British, had the "Maria Pequena," seized by the "Victor," sloop. The burthen of this slaver was but five tons, yet, besides her crew, provisions, water, and other stores, she had taken on board twenty-six slaves, who were found stowed away, but with less care than so many fitches of bacon, between the water-casks and the deck, a space of only *eighteen inches* in height. Six of the creatures were dead, and the rest in a state of starvation.

2.—HUNTERS AND TRAPPERS OF THE WEST.

THE FUR TRADE.

At the anniversary celebration of the founding of St. Louis, Missouri, in February last, much was said in reference to the progress of the western country, but nothing more interesting than the remarks of Thomas Allen, Esq. We have allotted them a space in our number.

LACLEDE had a monopoly of the trade of the Missouri river, and of the country west of the Mississippi, as high as the St. Peters. Their furs were generally taken to Canada, whence they were shipped to European ports. Four years were consumed in getting returns of European goods, which also came through Canada. The annual cost of those goods brought here for the fur trade about this period, is stated to have been about \$35,000—on which there was a freight charge of 100 per cent. (no steamboats then), but the profits, nevertheless, are said to have equaled 300 per cent. The trade of the Missouri river was more valuable than that of all the others united; and the business increased so, that, during the last ten or fifteen years of the last century, the average value of the goods, annually sent up that river, in exchange for furs, amounted to something over \$61,000.

It was impossible, owing to the great extent of canoe navigation from Quebec, in Canada, for example, to points 1,000 miles up the Missouri, for single individuals to prosecute the trade. Hence the necessity of companies, by which the trade was always conducted.

These companies subdivided their labors among agents or clerks, canoe men or voyageurs, coureurs des bois, or wood-rangers, and hunters and trappers. The goods were sent up the river in Mackinaw boats, carrying 1,500 lbs. to three tons, but bark canoes were employed on the smaller streams and at portages.

But Mr. A. said he saw and felt it was impossible to do justice to the subject on such an occasion, or to compress into a brief and hurried speech, anything more than simple mention of the more prominent transactions.

About the year 1792, several trading voyages were made up the Missouri by Frenchmen and Spaniards of this city, connected with a company formed here by a Scotchman of the name of Todd, under the protection of the Spanish government, the object of which was to monopolize the whole trade of the Missouri. A journal of one of these voyages, made by JOHN BAPTISTE TRUDEAU, our first schoolmaster, has been preserved in the Department of State at Washington. It appears that the petitions of many of these people to the government for grants of land, were based upon the ground of services rendered in these expeditions.

The average annual value of the furs collected here for fifteen successive years ending in 1804, is stated to have been \$203,750. The number of deer skins was 158,000; beaver, 36,900 pounds; otters, 8,000; bear, 5,100; and Buffalo, only 650. A very different state of things from the present, when the beaver are nearly exhausted, and the most important article in the trade are buffalo robes.

In 1802, James Pursley, an American, with two companions, left St. Louis on a hunting expedition to the sources of the Osage. A most unpropitious and versatile fortune led him, after three years of adventure and hardship, and contrary to all his wishes and intentions, afar off into Santa Fe. Having lost all his outfit, and been repeatedly plundered, he had but a solitary gun left, and the Mexicans were near hanging him for attempting to make a little gunpowder to charge it! He mentioned this case, not only as illustrative of the vicissitudes of the hunting and trapping life, but because he, a trapper, James Pursley, had the honor of being probably the first American who traversed the great plains between the United States and New Mexico.

When the government of the U. S. sent Lewis and Clark on their expedition in 1804, and Maj. Pike to explore the sources of the Mississippi, the Arkansas, the Kansas, and the Platte rivers, our hunters formed their companies, had preceded them, and were then to be found on all the rivers east of the Rocky mountains. Loisel, outfitted by Mr. Auguste Chouteau, of this city, had a considerable fort and trading establishment on Cedar island, a little above the Big Bend of the Missouri. They were dwelling also, among the Ottos and the Missouris, and were of indispensable service to those travelers.

In 1808, the Missouri Fur Company was formed in this city, consisting principally of Pierre Chouteau, Sr. (the venerable gentleman before him), Manuel Lisa, Wm. Clark, Sylvester Labadie, Pierre Menard, and Auguste P. Chouteau, with a capital of \$40,000. They sent an expedition under Major A. Henry to the Yellowstone, and established a number of trading-posts upon the Upper Missouri, and one beyond the Rocky Mountains, on Lewis river, and also on the southern branch of the Columbia, being the first post established upon the waters of the great river of the Oregon territory. Our hunters had the honor of it. Mr. A. would pass over the magnificent enterprise of Mr. Astor, of 1809, which terminated in 1812, and with which all were familiar.

The Missouri Fur Company was dissolved in 1812, and the same year most of the former members of the company in this city, established independent houses,

with the design of furnishing outfits to private adventurers in the trade of the Missouri. Of such a character were the houses of Berthold & Chouteau, B. Pratte, J. P. Cabanne, and M. Lisa. But few, if any, American citizens prosecuted the trade west of the Rocky mountains from 1813 to 1823.

In 1819, Mr. John Jacob Astor, established a branch of his house in this city, under the charge of Mr. Samuel Abbott, and it was called the Western Department of the American Fur Company. This Company embraced the trade of all the northern and western parts of the United States, east of the Rocky mountains. The monument of their success, was the inordinate wealth of Mr. Astor.

About this period, a new company was formed here, or rather the old Missouri Fur Company was revived with new partners. They were chiefly Maj. Joshua Pilcher, M. Lisa, Thos. Hempstead, and Capt. Perkins. A hunting and trapping party of this company, under Messrs. Jones and Immel, were attacked by the Blackfeet Indians on the Yellowstone, in 1823, and several of the party, including the leaders, were killed, four wounded, and the party robbed. The company was unfortunate, and continued but a few years.

Then came, in 1823, the high enterprise of General Wm. H. Ashley, of this city re-establishing commercial intercourse with the countries west of the Rocky mountains. He lost fourteen of his men, and had ten wounded in a fight with the Aricara Indians at the first start. But persevering, Gen. A. and his men ascended to the sources of the Sweetwater, and discovered the *Southern Pass* of the mountains, since the well-known great highway of the nation to Oregon, and discovered also the Green river, beyond, running into the Colorado of California. Here he was very successful and brought back to St. Louis a large stock of furs, which he sold for unusually high prices. He made another expedition in 1825, and ventured as far as the great Utah Lake, and near that discovered another and a smaller, to which he gave his own name, and there established a fort. Two years after a six pound cannon was drawn from Missouri to this fort, 1,200 miles, and in 1828, many loaded wagons performed the same journey. Between the years 1824 and 1827, Gen. Ashley's men sent to this city furs of the value of over \$180,000. Having thus acquired a competency, Gen. Ashley sold out all his interests and establishments to the "Rocky Mountain Fur Company," then formed here, in which Messrs. J. S. Smith, David E. Jackson, and Wm. L. Sublette, were principals, and our friend Mr. Robert Campbell, there, on his right, was then Clerk—now President of the Bank, Aid-de-Camp of the Governor, and the incumbent of, he didn't know how many other posts of honor, of which, he was sure, no gentleman was more worthy. These energetic men carried on for several years an extensive and profitable business, during which they traversed every part of the country about the southern branches of the Columbia, and ransacked nearly the whole of California. Mr. Smith was killed by the Camanche Indians, on the Cimarrone, in 1831. It was a remarkable fact that, in the period of five years from 1825 to 1830, of the number of our men employed in the trade, *two-fifths* were killed by the Indians, or destroyed by accidents and dangers of the country.

The individual traders of the city united in 1825, in the firm of B. Pratte & Co., and continued thus in the business for six years.

The year 1832 was fruitful in events. Messrs. Sublette & Campbell went to the mountains, Mr. Wyeth established Fort Hall, on the Lewis river, and disseminated much useful information in regard to Oregon; Capt. Bonneville's expedition took place; Fort William was established on the Arkansas by the Messrs. Bent, of this city; a Missouri trapper of the name of Pattie, published an account of his rambles in the northern and western provinces of Mexico, and the American Fur Company sent the first steamboat to the Yellowstone.

Mr. Astor retired from business in 1834, and sold his western department to Messrs. B. Pratte, P. Chouteau, Jr., and Cabanne, of this city, who conducted the business until the year 1839, when the organization took place which now exists. Nearly the entire Fur trade of the West is now conducted by the house of P. Chouteau, Jr., & Co., and the company of the Messrs. Bent and St. Vrain.

The annual value of the fur trade of this city, for the last forty years, had been probably between two hundred and three hundred thousand dollars, and had thus been not only profitable to our citizens, but a source of wealth to our city and our State.

Such, said Mr. A., had been some of the services of our hunters and trappers—they had cleared the way for us, their fortunate successors, and laid the foundations of that greatness, to which, as a city, we are rapidly marching. They,

however, were going the way of the animals they have exterminated—were disappearing in the direction of the setting sun, expending their remaining energies and final services, in lighting the way and guiding the footsteps of the emigrant and the settler, to the home they are seeking in Oregon and California. Many of them there were, whose unwritten biographies were crowded with "hair breadth 'scapes and moving accidents by flood and field," stranger and more romantic than fiction; and he only regretted that he had not opportunity there to bestow upon them that measure of honor and justice to which they were so highly entitled.

3.—IMPRESSIONS OF NEW ORLEANS BY A FOREIGNER.

Every sort of opinion we have heard ventured by those across the water, in relation to our country. We suffer ourselves, sometimes, to be provoked; we generally smile; we are always interested. The latest notions of us we have seen are those of Charles Hooton, Esq., whose *St. Louis Isle, or Texiana*, has been published in London. As this writer is characterized in general by much fairness, and remained several months in New Orleans, we will give a few of his views of that city.

DISTINCTIVE FEATURES OF THE CITY.

Perhaps it is owing to the prospective horrors of yellow fever, the almost instinctive abhorrence of slavery, or the dread of those innumerable annoyances to which a hot climate subjects the Northern visitor, that we owe so little in the way of information to the majority of our tourists in America respecting that great Southern metropolis of the States, New Orleans. Even when visited, it appears to have been much under the same feeling as one might undertake a morning call upon some unhappy patient in the blue stage of the cholera; the predominant tendency being, to get away again as quickly as possible,* and without allowing time either for the due exercise of the judgment, or the investigation of such matters as a laudable curiosity naturally leads us to desire acquaintance with—a matter much to be regretted in itself, since the remarkably distinctive features which characterize American society in this broiling region, as compared with the strong English character of the Northern citizens, deserve much more attention than, as far as I am aware, they have hitherto received. The place itself, too, is something of a curiosity in the way of a city, and, together with its inhabitants, amply sufficient, be it hoped, to afford material for an amusing (and perhaps instructive) half-hour's reading.

APPROACHES TO THE CITY.

All the way up to "The Crescent City," a vast forest extends on either side, as far as the eye can reach; opened here and there by the axe of the settler, and enlivened by happy-looking rustic homesteads, or the more extensive village-like establishments of the planter. Though past the middle of December when I arrived, the negroes were at work cutting the sugar-cane—that tall and beautiful plant, whose height made themselves and their cattle appear dwindled to the size of Shetland ponies. About the houses, rows of orange trees, covered with their glittering fruit, gave brilliancy to the scene; though some regret was felt that those monstrous alligators, which abound in this river, and afford amusement to the voyager during the hotter months, had betaken themselves to winter quarters so universally, that not a solitary one put up his nose and his formidable threatening eye above water.

APPEARANCE OF NEW ORLEANS.†

Viewed from the river below, New Orleans does not appear materially inferior to Liverpool. The appearance, however, is nearer than the reality by far; since the absence of basins and docks causes all the vessels in port to lie out alongside, and thus the commercial marine is displayed to the fullest advantage. Neither is the city so large by three-fourths, or possessed of such excellent buildings, if we except the old French cathedral, which is a handsome pile, directly facing the river.‡ In one feature, however, it is far superior to Liverpool, and that a very

* On the contrary, Mr. Hooton, we never knew a traveler who did not overstay his allotted time in New Orleans, and regard a departure with pain.

† In our back volumes we have a great variety of sketches of the city. The number for March, 1847, contained a beautiful engraving of it. The number for June, same year, embraces an engraved view of Balize at the mouth of the river.

‡ Quere—"handsome."—Ed.

important one: I mean in the absence of that visible wretchedness, poverty, and degradation, to be everywhere seen mingled with the wealth and splendor of its great commercial prototype. Indeed, with respect to the condition of the laboring classes, or those classes whom we see most generally crowding the streets and roads—comparing one with the other, an American from the South, on setting his foot in England, could scarcely help but feel that he had walked into the doorway of the great workhouse of the world. Nor could readily be named two local places where the contrast in this respect is more curiously visible than in Liverpool and in New Orleans. Its charities, both public and private—each equally unostentatious—are extensive and unceasing; since the unbroken demand created by the continual influx of British paupers, chiefly Irish, who rush, totally unprepared, into the extremes of a Southern climate, will not allow a very expanded benevolence to rest one moment from its cares.

Orleans is built in the midst of those extensive cypress swamps which line not only the lower part of the Mississippi, but extend far and wide over various parts of the coasts and river borders in that neighborhood. Its site is, therefore, chiefly "made ground;" and as it extends round the elbow formed by a bend in the river, nearly in the form of a half-moon, it has received the title of "The Crescent City." The streets, composed of curious heavy-roofed old French houses, are laid out as nearly as possible at right angles, and run the whole length and depth of the city under one name; thus avoiding the common inconvenience in London of having what is evidently a single street, dubbed in as many places by half-a-dozen different titles.* These streets are crossed at intervals with ropes attached to the tops of opposite high poles, and carry a lamp swinging in the middle; a primitive method of lighting by night, but one at once picturesque and novel to the eye of a stranger.†

Notwithstanding all this, the drainage obtained is so very slight that during heavy rain the streets are flooded nearly across, and an individual passing along may be said to wade as well as walk; yet, a few hours after the cessation of rain suffice to set everything high and dry again.‡

When the river is swollen, the city lies below its level. To prevent inundation, a high bank termed the Levee is raised, extending up and down far beyond the precincts of the city itself. To this bank the natural depositions of the river are in constant course of being added; and as a vast portion of soil is continually brought by the current from the opposite side of the river and deposited here, the crescent form becomes lost, and in the course of years must disappear altogether.

THE SLAVES.

The slave population generally exhibits a marvelously mixed variety of hues, from very dark through all conceivable transitions to a white almost as pure as that of a European, though in the latter cases the modified negro features are still preserved in much of their primitive integrity. As the females advance into middle age, they frequently become so remarkably stout, that, in comparison, the proverbial and ideal alderman of this country thins off into something like a lath. The whole mass quivers as it walks along, and its general motion not unaptly conveys the idea of a heavy rocking carriage on a railroad. Almost immediately after my arrival in the city, one of these sombre mountains of flesh met me in the street, and in passing nearly swept me—if not exactly off the face of the earth, at least off the breadth of a broad causeway. During the space of about four months afterward, she somehow haunted me in all my walks—of course not intentionally, but Providence so ordered it. Go wherever I would, on business or pleasure, there she was. It really appeared at last to be her especial business to perambulate the streets in search of me. Never did I wish to be a slave-owner either before that time or since, but *then* the desire became irresistible. But it was wholly confined to that one elephantine female; for had she been mine, I would have parted with her for a penny to any man who would have carried her to Kentucky and kept her there. At length she happily disappeared all of a sudden; whether she died, was confined in a hogshead, and buried in the gap of an earthquake, or still lived

* The writer grossly mistakes—Chartres st. changes to Condé, St. Charles to Royal, Camp to Chartres, &c., &c.—ED.

† This will apply chiefly to the suburbs.—ED.

‡ True to the letter. We have some interesting lakes and inland seas at these times in New Orleans.—ED.

to occupy a range of building to herself, I never knew; my consolation lay in the simple fact that she was gone.

FLAT-BOAT COMMERCE.

A flat-boat is nothing more than a quadrangular floating box—a wooden dripping tin—a capacious washing tub, composed of rough sawn planks, and provided with a rude kind of cabin, made sufficiently water-tight to enable it to float down the current to its destination, and no more. Numbers of this description of craft are moored so closely together by the river-side, that one may run along the floor formed by their flat-covered tops with equal facility as upon the deck of a ship.

The owners of the flat-boats no sooner arrive, than they open their floating shops for the sale of their respective cargoes; and as their prices average little more than one-half of those demanded for the very same articles when retailed in the stores of the city, there are always numbers of customers thronging the levee, and keeping the region of the flat-boats in a state of remarkable liveliness.

MISSISSIPPI STEAMERS—THE LEVEE.

Those prodigious buildings, the cotton steamers, also constitute a remarkable feature upon the Mississippi. The English reader cannot possibly form a more correct idea of their appearance at a distance than by imagining to himself a "factory" three or four stories high, placed upon a rather ornamental raft, and sent to float upon the water. On a nearer approach and closer inspection, however, they are found to be splendidly got up, and provided with accommodation (civility and gentlemanly conduct included) to which the traveler by any other than first-class British vessels is too often a stranger.

During that period of the year in which the produce of the West is principally brought to Orleans, the banks of the river are literally covered with thousands of bales of cotton, barrels of molasses, hogsheads of sugar, and cases of various other articles, which remain wholly or in part thus exposed during the space of some weeks. The merchants and agents to whom these goods are consigned, provide private armed watchmen to protect them during the night against the negroes—a race of people who appear to inherit a peculiar liking for sugar and treacle in particular.

NEW ORLEANS MARKETS.

The "French market" is the greatest one; and taking into consideration both the amazing variety of produce, and the equally great variety of human character and dress there assembled, it presents perhaps as fine and curious a picture as, in the same way, can be found in any part of the world. Tropical fruits, of all kinds, from the neighboring West Indian islands—parrots that run at large about the stalls, and talk and scream at will—various beautifully colored birds in cages—gigantic herons—wild ducks and geese of all sizes and colors—pigeons, squirrels, owls, and fish of indescribable varieties, together with cray-fish creeping about alive in the baskets, form some portion of the merchandise most unusual to the Northern stranger. The birds are killed by the hunters in the forest swamps and pools—the fish taken chiefly in Lake Pontchartrain, which lies about three miles behind the city and communicates with the Mexican Gulf. The finny prey is brought direct from the fishing-boats by railway, in the space of six or seven minutes; so that it is a usual thing to see them (the buffalo-fish especially) still gasping for the water of life when the purchaser carries them away. All this will be found in one part; in another, all descriptions of culinary vegetables and fruits that the season can produce; and, as may be supposed in such a climate, they are not at any time wanting either in variety or abundance. In a third avenue will be found newly-baked bread, in most tempting variety of shape, together with confectionery and sweatmeats of every sort to which French taste in this important petty art can give rise.

In a separate building, the visitor wanders through a little province of butcher's meat, slaughtered in the cleanest style imaginable, and compared to which the shambles of London positively resemble a slaughter-house. Heads and offal are never seen. Here occasionally the eye may alight upon the carcass of a fine bear, ticketed probably "St. Charles' Hotel," by way of hint, one may presume, that if the lovers of bear's meat want a dinner upon that splendid viand, they now know where to find it.

4.—THE WILMOT PROVISIO'S EXCLUSION.

The South has, with just indignation, and with one voice, condemned the nefarious scheme in its very bud, which threatens in all future time to reduce her to a subordinate position in the Union; without any other rights than those that may be graciously conceded by a sovereign and hostile majority upon the floor of Congress; nothing, perhaps, for half a century has produced deeper excitement among us, and we look with the greatest anxiety to the meeting of Congress this month to determine the results. Everything depends upon them. If abolition and disorganization are but narrow sects at the North, of the ignorant and the deluded, let the members of Congress from this section speak out. We must and will insist upon knowing who are our friends; or rather—for we ask not friendship—who have respect for our rights!

It behoves the South to be firm in this crisis, and preserve its temper in every respect. From a want of discrimination we have often offended good and firm friends in the midst of abolition regions. There are thousands and hundreds of thousands of leading citizens in every part of the North and East, who deprecate all interference with us and our institutions, and who incur the hostility of their neighbors by an advocacy of our rights. Let us respect these men, and remember them always when we dispute. In our summer excursions at the North it surprised and delighted us to find so many. In fact, what is a little remarkable, we scarcely found a man willing to admit, in conversation with us, that he was an abolitionist in every sense of the term. There was always some one worse than himself. In fact, we often found that "abolitionist" was, in many sections, a kind of taint. We know, indeed, that the Democratic Convention of New York have rejected the Wilmot Proviso, and this is, without doubt, the sentiment of that State.

Let us, as of some importance for reference, present the celebrated proviso, and the resolutions, &c., to which it has given rise. As other legislatures meet we may expect louder and louder blasts.

WILMOT PROVISIO.

That there shall be neither slavery nor involuntary servitude in any territory on the continent of America, which shall hereafter be acquired by or annexed to the United States, by virtue of this appropriation, or in any other matter whatsoever, except for crimes, whereof the party shall have been duly convicted. Provided always, That any person escaping into such territory, from whom labor or service is lawfully claimed in any one of the United States, such fugitive may be lawfully reclaimed, and carried out of such territory to the person claiming his or her labor or service.

MR. CALHOUN'S RESOLUTIONS IN SENATE.

Resolved, That the territories of the United States belong to the several States composing this Union, and are held by them as their joint and common property.

Resolved, That Congress, as the joint agent and representative of the States of this Union, has no right to make any law, or do any act whatever, that shall directly, or by its effects, make any discrimination between the States of this Union, by which any of them shall be deprived of its full and equal right in any territory of the United States, acquired or to be acquired.

Resolved, That the enactment of any law which should directly, or by its effects, deprive the citizens of any of the States of this Union from emigrating with their property into any of the territories of the United States, will make such discrimination, and would, therefore, be a violation of the Constitution, and the rights of the States from which such citizens emigrated, and in derogation of that perfect equality which belongs to them as members of this Union, and would tend directly to subvert the Union itself.

Resolved, That, as a fundamental principle in our political creed, a people in forming a Constitution have the unconditional right to form and adopt the government which they may think best calculated to secure their liberty, prosperity, and happiness, and that in conformity thereto, no other condition is imposed by the Federal Constitution on a State in order to be admitted into the Union, except that its Constitution shall be strictly republican: and that the imposition of any other by Congress would not only be in violation of the Constitution, but in direct conflict with the principle on which our political system rests.

In January, 1847, The State of Vermont approved and adopted the Wilmot Pro-

viso; in February, the State of New York; in the same month, Pennsylvania, Ohio, New Jersey, and New Hampshire; Michigan claims the extension of the ordinance, prohibiting slavery north-west of the Ohio; in August, 1847, Maine adopted similar resolutions; Massachusetts, March 1.

Resolved unanimously, That the Legislature of Massachusetts views the existence of human slavery within the limits of the United States as a great calamity, and immense moral and political evil, which ought to be abolished as soon as that end can be properly and constitutionally attained; and that its extension should be uniformly and earnestly opposed by all good and patriotic men throughout the Union.

RESOLUTIONS OF THE STATE OF VIRGINIA.

Resolved, That the Government of the United States has no control, directly or indirectly, mediately or immediately, over the Institution of Slavery, and that in taking any such control it transcends the limits of its legitimate functions by destroying the internal organization of the sovereignties which formed it.

Resolved, That under no circumstances will this body recognize as binding any enactment of the Federal Government, which has for its object the prohibition of Slavery in any Territory to be acquired either by conquest or treaty, south of the line of the Missouri compromise, holding it to be the natural and independent right of each citizen of each and every State of the confederacy, to reside with his property, of whatever description, in any Territory which may be acquired by the arms of the United States or yielded by treaty with any foreign power.

Resolved, That this Assembly holds it to be the duty of every man in every section of this confederacy, if the Union is dear to him, to oppose the passage of any law, for whatever purpose, by which Territory to be acquired may be subject to such a restriction.

Resolved, That the passage of the Wilmot Proviso by the House of Representatives of the United States makes it the duty of every slaveholding State and the citizens thereof, as they value their dearest privileges, their independence and their rights of property, to take firm, united, and concerted action in this emergency.

5. COTTON BALED WITH IRON HOOPS.

BURTAU, LOUNDES CO., ALA.

J. D. B. DE BOW, Esq.,

The subjoined letter, written, I have no doubt, in a spirit of perfect candor, and intended fairly and in good faith by the writer, to present a true statement of the relative advantages of rope and iron hoops in the packing of cotton, nevertheless contains objections to the use of the latter article, which I conceive so untenable, that I send the letter to you for publication; hoping it may arrest the attention of R. Abbey, Esq., of Mississippi, or some one else practically acquainted with the subject, and elicit a reply.

As they are the objections not of the writer of the letter, but of that entire community of cotton sellers and buyers of Mobile, who control the preparation for market of so large a portion of the Southern crop, I hope Mr. Abbey, whose valuable article in your January number, contains so many good reasons for preferring the hoop iron, will not think them undeserving a reply. With several newly invented, and, as I believe, *improved* cotton presses, just coming into use, we can certainly pack our bales within a square of 22 inches, and if we can persuade our mercantile friends in Mobile, that there is no good reason why bales thus packed, and *kept in their square form by the unelastic iron hoop*, should be "*un-merchantable*"—we can certainly avoid the onerous tax of repacking them in Mobile—but as long as we use the hemp rope, which by stretching, allows our bales to lose their compact square shape, and to become enlarged and flattened, so as not to pack close on shipboard, we must submit to the tax of repacking.

AN ALABAMA SUBSCRIBER.

MOBILE, SEPT. 8, 1847.

DEAR SIR:

Your favor of 29th ult., is before us, and contents have had our attention. Cotton compressed is only reduced in *depth*, and the average is about one-third less than the bale before being compressed. A large light bale will be reduced more than a smaller one of the same weight. The presses run them down to nearly

half the depth; but when the ropes are tied and the bale turned out, it expands, so that it is reduced by compressing about one-third in depth—the length and breadth being the same as before compressing.

A few years ago, a lot of cotton came to this port with iron hoops, but it was pronounced unmerchantable, because in compressing the hoops had to be taken off and ropes substituted. The planter discontinued the use of hoops, and none have since been received here put up with them. All cotton is pronounced unmerchantable that has other than good grass or hemp ropes on it.

Could you even put up your cotton in the size of compressed bales, we think it would be best to use hemp ropes. In loading a ship, the cotton is driven by means of jack-screws so tight that iron hoops would break—where rope would only be loosened and removed a little, and when the cotton is turned out, the expansion immediately fastens the ropes again—even though cotton is compressed as well as it can be done, in stowing the ships it is often driven so hard by means of jack-screws that ropes are loosened, and shippers say that the iron hoops would break.

We can purchase the hoop iron as follows:—at 7 cts. per lb.

Hoop Iron $\frac{1}{4}$ guage 20, say 7 ft. 4 in. weighs 12 oz.

" $\frac{1}{2}$ " 20, " 7 ft. 4 in. " 14 oz.

" $\frac{3}{4}$ " 20, " 7 ft. 4 in. " 1 lb.

Rivets to suit, say 2 lb. iron rivets, can be bought at 75 cts. per thousand.

We have stated all that we can learn about this matter, and we think the use of iron hoops instead of ropes is not viewed in a favorable light by dealers, shippers, &c., of cotton.

You will find in the January number of De Bow's Commercial Review, published in New Orleans, an interesting and well written article on the mode of putting up cotton in the best manner for market, to which we beg to refer you, if you have not already perused it.

The average weight of a compressed bale, we have been told, is 30 lbs. to the cubic foot.

Your obedient servants, &c.

6.—INTERNATIONAL EXCHANGES—M. VATTEMARE'S MISSION.

It is expected that M. Vattmare will visit New Orleans this winter. He complains that in 1844 he was not cordially met on the part of the citizens, though one part of the legislature passed a resolution appropriating funds in aid of his object. Lately M. Vattmare has been invited by the Louisiana Historical Society to visit the city, and explain before it the full system he is carrying out, and a similar invitation has been made by Samuel J. Peters, Esq., in behalf of the 2d Municipality Lyceum. In New York we had the pleasure of much of M. Vattmare's society, and received from him—to be presented to Louisiana—a number of volumes, many of much value.

We design a few remarks upon this important mission to America. M. V. first visited the United States in 1839, as he says, to establish an international exchange of all that is valuable in science, literature, natural history, and the fine arts—and the establishment in every nation and state of an institution (under the fostering care of its government) to receive these exchanges—forming not only a *Museum*, illustrative as well of the powers of nature as of the state of perfection to which the productions of the human mind and hand have arrived, or are tending to in every quarter of the globe, but a kind of patent office, where the creations of the industry, the achievements of the intellect, of the inventive faculties, and of the government of each country, may be at once and always assigned to their true origin, and always verified without doubt or difficulty.

Returning to France in 1841, M. Vattmare carried 1800 volumes and near 1000 engravings, collected and presented to him in this country—for a large part state laws, reports, &c. In exchange the municipal councils, the different ministers of government, &c., appropriated many rare and valuable volumes; private citizens, authors, societies, &c., of France, added to the list. Many of these works are the most splendid and costly imaginable, and are never to be had on sale, nor could they be procured in any other manner. We had the pleasure of inspecting the most of them in the City Hall, New York, and in warehouse.

Congress, in 1845, appropriated \$500 and a copy of state documents, reports, &c., &c., to this object. The Secretary of War sent a copy of "Indian Tribes of North America," by Catlin. The City Council of Baltimore appropriated certain

works; the State of Maine 94 volumes and \$1,000; Michigan gave a splendid collection of works; Massachusetts a collection of her public documents, 195 volumes, and appointed M. Vattermare agent for transmission, &c., providing for necessary expenses, &c.; New York sent 200 volumes; Indiana 512 volumes.

Among the donors from France to the United States are His Majesty Louis Philippe, 20 volumes; Chamber of Peers, 150; of Deputies, 200; Minister of Justice, 250; War, 50; Navy, 150; Interior, 200; Commerce and Agriculture, 259; Public Works, 534; Finances, 128; City of Paris, 200; Agricultural Society, 156; besides an immense collection of maps, &c., and works from individual donors and societies.

As Louisiana would be among the foremost in all great enterprises, we are persuaded she will co-operate in this great movement of the age, tending to bring all the world more and more into the most friendly of all relations, since M. Vattermare's plan embraces all countries. If we would furnish a library for our State University, or for the State itself, by appropriating any number it pleases us of our official publications, we can receive in return the official publications of France, and in the result, we hope, of all Europe. Our libraries cannot be complete without these works, and they can be had in no other manner. For what we give there will be received a more than ample equivalent. If we have not works enough to give in exchange on our State, we can purchase them. If the legislature will appropriate one, two, or three thousand dollars annually, the Secretary of State may judiciously invest it for American publications, &c., showing the condition of our agriculture, commerce, arts, manufactures, laws, literature, &c., to be exchanged for similar works from other countries, on the most liberal basis. We really hope for the most gratifying results.

7.—LIBRARIES IN THE UNITED STATES.

According to a table compiled from the researches of a literary gentleman of New York, there are in the United States no less than 235 public libraries. The aggregate number of volumes is set down at 2,351,260. It appears that the State of New York has 33 libraries, with 174,000 volumes; Pennsylvania, 32 libraries, with 176,100 volumes; Massachusetts, 30 libraries, with 203,000 volumes; Ohio, 23 libraries, with 68,000 volumes; Maryland, 11 libraries, with 54,200 volumes; the District of Columbia, 9 libraries, with 75,600 volumes; and the other States smaller numbers. Rhode Island, in proportion to her population, has the largest number of volumes of any State in the Union.

EDITOR'S NOTE.—TO PUBLISHERS, &C.

There are a large number of works upon our table, politely furnished by the publishers and editors, which shall be elaborately noticed in our January No., space not admitting of it now. We would not do injustice to these works by hasty references. Our Book Department next year will receive great attention, and all publishers are invited to send in their works.

END OF VOL. IV.

THE MONEY CRISIS IN ENGLAND.

The following communication was handed us some weeks ago, by our fellow-citizen, SAM'L. J. PETERS, Esq., and contains what we regard a sound exposition of the present embarrassments in England. We regretted that Mr. Peters' paper came into hand too late for insertion in the body of the work; but such is our favor for it, that we determined at once upon its appearance in the present supplemental manner. This will be a sufficient apology for what might otherwise be regarded anomalous.

THE financial condition of England has for more than half a century had a sensible influence on the affairs of the world. With those countries with which Great Britain has been most connected by commercial relations, that influence has been at times intensely felt. Considering the mutual dependence existing between that country and our own, an examination into the causes of the present crisis there, cannot be uninteresting; indeed, a knowledge of them may enable us to form a more correct opinion on the probable duration of it, and of its effects on our own interests.

The extraordinary pre-eminence which England has so long enjoyed as a commercial nation, may be traced back to the period of the Protectorate; it was then, in 1651, that the famous Navigation Act was adopted—afterwards re-enacted at the Restoration. This was the first and most important of the laws of England enacted for the protection of British skill and industry; and even Adam Smith, the great apostle of free trade, admits its salutary influence on the growth and prosperity of the nation. A speedy consequence of that act was the triumph of British enterprise over that of the Dutch, who had, to that time, for a very long period enjoyed a monopoly of the sea. This celebrated act gave the first impulse to the foreign Commerce of England, and from that time, to within a recent period, the sagacious policy of British statesmen uninfluenced by dynastic changes, or party distinctions, has been steadily directed to the extension of the commercial and manufacturing interests of that country. The application of automatic power to manufactures in lieu of manual labor, has, within the last half century, made Great Britain as conspicuous for its superiority in that source of national wealth, as in that of commerce.

The vast amount of capital required to conduct her commercial and manufacturing interests, thus extended over the surface of the globe, has gradually led to a system of credit, based on public and private confidence, far exceeding in extent any example that the past or contemporaneous history can furnish. The government, itself, during the American Revolution, previous to which the national debt was comparatively inconsiderable, and the expensive wars which grew out of the French Revolution, had to rely on credit, and during twenty years on inconvertible paper, as the only means by which its foreign policy could be sustained. Thus gradually have national and individual interests combined to create an artificial wealth, which so long as confidence in public and private faith and ability, is sustained, performs to all intents and purposes, and with incomparably greater

convenience and economy, the functions of intrinsic wealth. The national debt is now between eight and nine hundred millions of pounds sterling. The annual interest is not far from twenty-seven millions sterling. A portion of this debt constitutes, by law, the capital of the Bank of England, except about three millions, which the Bank has usually loaned to the government. Although the magnitude of the national debt renders its payment, and even any considerable reduction impossible, yet the holders of the stock representing that debt are in the possession of wealth to the amount of its market value. It is to them, capital, as it is to the Bank of England. Thus an element of national debility has been converted, by confidence, to means of national greatness, unprecedented in the history of the world.

This national debt forms but one item of the illusory wealth of the British people. Commercial credits issued by their joint stock banks, and by houses of established reputation, are sent to all countries which have surplus products of their soil and industry, and constitute the medium by which they make their interchanges. This latter species of credit is based on something more than faith, nevertheless confidence is essential to its use. Confidence and less than £40,000,000 in coin and bullion constitute the basis of the credit system of Britain. The Bank of England whose cash liabilities are thirty-six millions, possesses eight millions of this coin and bullion to meet them.

The last accounts from England show that confidence in public and private securities is much impaired; the depreciation of the funded debt, within a few months, amounts to over sixty millions, and that of other current securities to, at least, an equal sum. This is a loss of so much wealth or capital to the holders of that debt, and of those securities. Commercial failures to the extent of fifteen millions of pounds, have already occurred, and the causes which have led to this disastrous state of affairs, seem not only to be acting with undiminished intensity, but are accumulating power, from the very destruction they have occasioned. What in a time of peace and general prosperity has occasioned such astounding calamities?

The infallibility of Sir Robert Peel as a financier, and his honesty of purpose as a statesman, are, and have been seriously questioned by the opponents of his singularly vacillating policy: events are showing with how much propriety.

Lord Ashburton, one of the most practical statesmen of England, has recently exposed, and in a most able manner, the fallacy of the restrictions in the Bank of England act of 1844: their utter inconsistency with sound and generally admitted principles and well known laws which govern currency; and the present monetary crisis in England will, in the sequel, show how far the ex-Premier is responsible for the calamities which now afflict his country. By the "Peel restrictions," the Bank in a time of pressure may become an engine of destruction, and by becoming so, may even destroy itself. It is, however, by no means certain that any policy the Bank could have adopted, *without the "Peel restrictions,"* would have averted the crisis; therefore it is not just to ascribe it to the Bank, or to the errors of Sir Robert Peel's Bank Bill. It is not a deficiency of currency, but rather of capital, which causes the pressure; therefore,

any increase of issues of the Bank, would inevitably and immediately lead to a corresponding diminution of its capital; that is, its reserve of coin and bullion. On this point there seems to be a singular degree of misapprehension among writers on this subject, in England and this country. Yet the distinction between capital and currency is most manifest. In his speeches in 1844 on the renewal of the Bank charter, Sir R. Peel condemned, in no measured terms, the "Bank restriction act" of 1797; yet no one should have known better than he, that that act was forced on Mr. Pitt by irresistible circumstances, resulting from the foreign policy of the Government—a policy which Sir Roert Peel has, on more than one occasion, publicly approved. It would seem that either Sir Robert Peel did not understand the financial question involved on that occasion, or that he was insincere in expressing his condemnation of that act. That he has often evinced a remarkable suppleness in placing himself on the popular side, on all questions, cannot be doubted; hence the opinion of his adversaries that he preferred popularity to truth, and distinction and power to honorable retirement and the consciousness of having performed his duty.

The popular mania in England in 1844, '45 and '46, was Railway speculation. The remarkable success of the Liverpool and Manchester Railway, made in 1830, had, up to 1845, induced similar undertakings, involving an expenditure of seventy-five millions of pounds sterling. All, or nearly all, of the Railways made during this period of fifteen years, proved to be good investments. They had absorbed for their completion some five millions annually of the capital of the country; and it is but reasonable to suppose that sum formed but a part of the profits realized from foreign commerce during the same period; consequently, no derangement of the monetary affairs of the country was occasioned.

But in 1844, '45 and '46, the effects of these successful investments of capital were sufficiently manifested to create alarm in the minds of intelligent men in England. Parliament was, during these years, inundated with petitions for railway charters, involving outlays of capital to the extent of hundreds of millions of pounds sterling. It was popular to grant them, as it was popular in this country, from 1832 to 1837, to enact Bank charters by our State Legislatures, in order, as it was said, to aid the General Government to establish "a better currency." If one will imagine all the applications for Bank charters during that period to have been made to one Legislative body, he may form some idea of the British Parliament in the years 1844, '45 and '46. Sir Robert Peel, during nearly all this eventful period, was the master spirit, whose word was law. Hence he is to a great extent responsible for the consequences which are following the imprudent legislation of those years.

To oppose the importunities of railway projectors and speculators, would have been to jeopard place and power. Six thousand miles of railways were authorized to be constructed on that little island during those three years, the average cost of which, per mile, was estimated at £35,000, involving an expenditure of over two hundred millions of pounds! It was intended that they should be completed in from

three to five years. Adopting the longest as the average time of their completion, it would require forty millions, or \$200,000,000 annually for these investments. The amount thus expended during the year ending on the 1st October last, was £41,500,000.

Now, assuredly it requires but a very limited knowledge of Political Economy, to perceive at a glance that an annual diversion of capital from the ordinary channels in which it had been employed, to an extent exceeding the total amount of the coin of a country, must cause an extraordinary derangement of those interests, to sustain which it had been previously used.

The Government was not unadvised of these inevitable consequences. Prudent men, in and out of Parliament, warned them in vain of the threatened danger; but it seems that even the Directors of the Bank of England remained in a state of somnolency, and saw not the dark cloud which portended the devastating storm, until the tempest aroused them.

A writer in the *Edinburg Review*, in 1846, thus alludes to this subject:

"It appears there are now in progress, and sanctioned by Parliament, 5800 miles of Railway, to complete which and bring them into operation, will absorb at least two hundred millions of pounds. Most of the companies promise the completion of their enterprises in three years; but, allowing for engineering casualties and unforeseen causes of delay, there is no reason to suppose any of them will require over five years, assuming, of course, that the necessary capital and labor will be forthcoming. The annual capital, therefore, necessary to effect this, will be £40,000,000. Such is the sum which must be taken yearly from the surplus savings of British industry for the next five years, if these projects are to be realized. *There is no escape from this astounding inference.* We say nothing of the amount of British capital promised to foreign railways, which, however, is not inconsiderable.

"Those who are best acquainted with public finances and the laws which regulate money and labor, regard the consequences of such a yearly demand with serious apprehension."

That the crisis so clearly predicted has occurred sooner than it otherwise would, the causes being aggravated by the partial failure of the grain crop, and almost total loss of that of the potato, in 1846, cannot be questioned; yet it was unavoidable. The deficiency of food rendered necessary the exportation of about twelve millions sterling of coin, which was equal to about one-fourth of the whole metallic basis of the currency. This alone was sufficient to produce great commercial distress. The exportation of a similar proportion of the specie now in the United States, within the same period, would probably cause a suspension of specie payments by more than half the Banks of the Union, including nearly all those of New York and New England, whose cash liabilities so very far exceed their specie.

It is true, legislators have passed laws making a suspension of specie payments highly penal, while at the same time they sanction and encourage a mixed currency of paper and coin, in the proportion of three to one; yet it is certain that the paper currency so constituted may at times, from causes beyond the control of the issuers, become

inconvertible! Thus, if it were necessary for us to import thirty millions of dollars of food or merchandise in one year more than usual, and there were no corresponding increase of the exports, the difference must be paid in coin: in such case the danger of a suspension would be imminent—an act of Providence, or perhaps an act of Congress, would be the cause. This proves nothing against the sound policy of a judicious and well regulated credit system, which in truth is indispensable; it only shows that, like our system of government, and all other human inventions, no matter how perfect, it is occasionally accompanied by evils, but which are amply compensated by the benefits which it permanently confers.

Our State legislators may well be excused for errors and inconsistencies, when similar incongruities have been sanctioned by the distinguished ex-Premier of England, in his Bank Bill of 1844.

The recent changes in the protective policy of that country, no matter how wise that policy may be, are doubtless exercising some influence. Interests of magnitude grew up under the fostering care of Government, which the present system has doubtless seriously injured, and has consequently caused great loss of capital. The most remarkable departure from the policy which was so rigidly adhered to by British statesmen during two centuries, was the adoption by Parliament, in 1833, of the Negro Emancipation Act. It was then that fanaticism and party calculations triumphed over the interests of the country, and indeed, as time is developing, over the cause of humanity, in whose name that monstrous wrong was perpetrated. That transaction increased the national debt £20,000,000, and inflicted losses on British merchants and capitalists to more than double that enormous sum. Some of the failures which have recently astounded the world, may trace their cause, in no small degree, to the effects of that suicidal act.

The withdrawal, then, of so large an amount of capital from trade and manufactures for the construction of railways, is the immediate and overwhelming cause of the present financial crisis in England—the severity of which is the greater, from the effects of the other causes alluded to.

The question naturally presents itself, When will this crisis end? It is clear the cause must first cease: the railway expenditures must be arrested, or those works must be completed by the aid of Government, by means of which the surplus capital of other countries may be obtained. Objectionable in many respects as such a measure may appear, it cannot be avoided without producing evils of alarming magnitude, including the suspension of cash payments by the Bank of England.

Efforts to arrest the railway expenditures have so far proved unavailing; and it does not seem probable that those works can be arrested, so long as the necessary capital can, by any means, be obtained. It appears, also, that the merchants of Liverpool have recently applied to Government for a relaxation of the restrictions on the circulation of the Bank of England, and for such relief as was granted to the merchants of London in 1793—namely, by the Government advancing to commercial houses, on good security, some five

millions of pounds, Exchequer bills; and it is asserted that these propositions have not been favorably received by the ministry. It is well, perhaps, to recur to the precedent on which this latter proposition was based.

In 1793 there was a financial pressure of great severity, ascribed, at the time, to many causes, but all widely differing from those now producing similar consequences, which threatened the existence of all the principal houses of London; many, indeed, succumbed. The Bank of England being alarmed, as at present, for its own safety, refused all aid. It was then Mr. Pitt agreed to loan five millions sterling of Exchequer bills to merchants, on good security, and Parliament sanctioned the measure. The immediate consequence was the restoration of confidence, and not half the amount was asked for, nor was there a shilling lost by the Government, of the amount loaned. Although this measure was objected to on sound financial, as well as constitutional grounds, yet its success silenced all opposition. It proved by its effects what was before but little understood—how important an element of national prosperity is confidence.

Whether the adoption of such a measure now, would be productive of similar results, is very questionable. The advance of such a sum would be but equal to six weeks' railway investments, after which a further advance of Exchequer Bills would probably again be necessary. Those securities are now at a discount, and there is reason to apprehend a deficiency in the annual revenue of the Kingdom, of over £5,000,000.

It is also proposed, by some, that gold shall cease to be a measure of value and medium of domestic exchange, and that Government notes shall be substituted. Anti-gold leagues are being formed, to carry this project into effect. If they succeed, it will inevitably lead to repudiation of public and private debts, to an extent equal to the depreciation of such a substitute—which would necessarily be very great.

The Government may well consider before it ventures to act on the various plans of relief suggested. On the one hand, if such relief be granted, it can be but temporary—inasmuch as whatever lessens the pressure of the money market, will facilitate the investment of capital in Railways, and thereby augment the evil which it would seek to alleviate.

On the other hand, if no relief be granted, and these troubles be left to work their own cure, the failure of Banks, Bankers, Merchants and Manufacturers will continue, until few will be left standing; hundreds of thousands of persons dependant on their daily labor for their subsistence, will be deprived of work; and social evils, of which in this country we can form but a feeble conception, will afflict the land, and perhaps endanger the stability of the Government itself.

The *Economist*, an English commercial periodical conducted with much ability, suggests as a remedy for the existing troubles, the issue of one pound notes. It assumes that such an issue by the Bank of England would, within a year, bring into the coffers of the Bank, twenty millions of the thirty millions sovereigns supposed to be in circulation in the Kingdom; that two-thirds of that sum might be

used as capital of the Bank, secured by an equal amount of Government securities, adding that much to the active capital of the country; the other third to be retained in gold in the vaults. If this were a correct calculation as to the amount of gold which would be exchanged for one pound notes, it is obvious the plan of the *Economist* would add but about £13,000,000 to the available capital of the country, equal to four months investments in Railways; and it is estimated one year would be necessary to effect the change, when four months' railway investments would be equal to the whole amount. It seems more reasonable to believe, under existing circumstances, that not more than ten millions of sovereigns would be thus withdrawn from circulation, and that consequently the extent of the relief from that measure would not exceed, during one year, £7,000,000; while, during the same period, forty millions of capital would be required for railways. That the measure proposed by the *Economist* is good to a very limited extent, cannot be doubted; and that the popular prejudice which theoretical economists had created against one pound notes—to which Mr. Peel in 1819, without his characteristic pliancy, lent himself—should be discarded, is unquestionable: the condition of the currency in England in 1825, and the effects of the stringent measures adopted for its reform, then sufficiently proved it.

But we must be allowed to differ from the *Economist* in another respect. It says in the number of October 2: "We have had an experience of twenty years more, during which the whole system of our banking and Banks has been greatly improved, and the principle has become universally admitted, and proved by experience, that Bank notes against which a certain reserve of coin is held, the remainder being represented by interest bearing securities as a guarantee for their convertibility, form a currency in every respect as efficient and safe as coin itself." This is true in times of prosperity and under ordinary commercial revulsions; but it unquestionably is not true on emergencies like the present. Unless the "interest bearing securities" are at all times, and under all circumstances, convertible into gold, the issues based on them are *not as safe as coin itself*.

Most, if not all, English writers on this subject, are influenced to a singular degree by the peculiar condition of the capital and currency of their country. In treating of principles, this often leads them into remarkable inconsistencies. Thus, they always speak of their Government securities as the equivalent of gold—as the basis of the circulation of Bank notes; and yet within three years these securities have diminished in value over eight hundred millions of dollars! and all the world knows that a political revolution would probably annihilate the whole.

Sir Robert Peel is opposed, in *principle*, to the Bank of England issuing one pound notes; yet he sees nothing wrong in that institution issuing fourteen millions of pounds sterling of notes of larger denomination, without being obliged, or even expected, to retain as much as one pound in gold for its redemption!

In 1810, during the suspension of cash payments by the Bank of England, when the celebrated report of the Bullion committee was made to Parliament, in which the existence of an excessive paper


circulation, and its injurious effects on the interests of the country were demonstrated, and preparations for a resumption of cash payments recommended, Mr. Vansittart, afterwards Lord Bexley, on behalf of the Government, opposed its adoption, and proposed in opposition the following remarkable resolution, which was adopted by overwhelming majorities of both Houses:

"Resolved, That the promissory notes of the Bank of England have hitherto been, and are at this time, held to be equivalent to the legal coin of this realm."


At the time of the adoption of this resolution, the current price of gold in London, in Bank of England notes, was £4 16 0 the ounce! What was done then, may occur again. But let us hope, that whatever may be the extent of the calamities to which Britain may be exposed, from the seemingly irresistible causes which are now prostrating the energies, the fortunes and the commercial character of her people, she may be enabled to surmount them; and that in no event the example of the Parliament of 1810 will be deemed a precedent worthy of her imitation.


New Orleans, Nov. 24, 1847.

*. Since the above was written, the news by the steamer Acadia has reached us. It confirms, in many important respects, the views of our correspondent; his prediction that the crisis was in no manner occasioned by the restrictions of Sir Robert Peel's Bank Bill of 1844; and that any additional issues of paper by the Bank of England would only increase the evil, has already, it appears, been singularly verified. *Ed. Com. Rev.*

 *Note.*—This number has been delayed by unavoidable difficulties, growing out of the establishment of a new Printing Office, devoted to the publication of the Review. These difficulties being now removed, the utmost promptness in the delivery of the work will be insured.

We regret to say that our bound volumes for 1846, though re-printed and published, have been detained in New York longer than could have been anticipated. Our subscribers may rely upon receiving them in January. We solicit additional orders.

 We are indebted to the publishers for many late works, which shall be noticed in our next.

 Our thanks are due to Senator Johnson, of Louisiana, for public documents.

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